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The Bancroft Memorial Lecture.[1]

SOME NON-SPECIFIC INFLAMMATORY LESIONS OF THE SMALL AND LARGE GUT.[1]

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I AM deeply appreciative of the honour the Queensland Branch of the British Medical Association has paid me in asking me to deliver the Bancroft Oration. Many of my predecessors have been men of considerable distinction in the world of scientific and clinical medicine. I think particularly tonight of my former teacher and your first orator, Sir John McKelvey, of my erstwhile chief and mentor, Sir Archibald Collins, and of Sir Alexander Murphy of this city. Like them, too, I would desire to pay tribute to Joseph Bancroft, an Englishman, who came to this country and this city as a young graduate in his late twenties and was soon to become one of your distinguished practitioners and surgeons. A man of many parts and of strong opinions, he was a biologist in its widest sense. Thus it was fitting that in 1877 he should describe the parent worm of filariasis, thereby deservedly gaining a world-wide reputation for himself and enhancing Australia's contribution to biological science.

Tonight, I might be allowed to digress for a moment to pay tribute to another distinguished member of the Bancroft family, Dr. Josephine Mackerras. Very few if any in this audience are aware of the outstanding work which Bancroft's daughter did during World War II as a member of the Malarial Research Unit at Cairns. Professor Sir Edward Ford, Professor Ruthven Blackburn and I would like to place on record our admiration of her scientific contribution to the work of this unit—a worthy daughter of a distinguished father.

As Bancroft the scientist was essentially a surgeon, it seemed fitting that a physician might discuss a group of diseases in whose management the closest medical and surgical cooperation is essential, and so I have chosen to talk for a short time on some of the non-specific inflammatory lesions of the small and large bowel. The group consists mainly of ulcerative colitis, Crohn's disease and the collagenoses as they affect the intestine. There are other non-specific lesions which will not be discussed. It may well be that the term inflammatory is wrong and that these lesions represent auto-immune or sensitivity reactions having fundamentally the same ætiology, but in our present state of knowledge it is preferable to regard them as non-specific inflammatory reactions and as distinct maladies. A widely-scattered group, met with not uncommonly in the wards of any large hospital, they are perhaps

[1] Delivered on September 1, 1960, in Brisbane.

more commonplace in a gastro-enterological unit, and it is my intention to highlight some of the experiences I have been privileged to share with my colleagues during the last 10 years in our unit at the Royal Prince Alfred Hospital.

Ulcerative Colitis.

Ulcerative colitis represents the dominant group, which may be divided into three main subgroups as suggested by Brooke and Cooke (1954) — namely entero-colitis, universal ulcerative colitis or colitis proper, and procto-sigmoiditis. Such a subdivision is essential both for the management and the assessment of the prognosis. In addition we would add segmental colitis as a variant of universal colitis, and fulminant colitis, which may occur in all three subgroups, although we have not seen it associated with procto-sigmoiditis.

Entero-Colitis.

This subgroup is comparatively rare and corresponds to Crohn's original description of right-sided colitis. Brooke and Cooke describe it as a mild continuous diarrhœa, watery in nature, without blood and mucus except terminally. They regard it as primarily a small-bowel diarrhœa, with secondary involvement of the colon spreading from the right side. In our small group the colon was universally involved.

Steatorrhœa is a characteristic feature which does not occur in ulcerative colitis proper even when backwash ileitis is present. It is both macroscopically and microscopically distinct from Crohn's disease. The removal of the colon is not helpful, as it leaves one with an ileostomy from which there is a constant watery discharge, leading to electrolyte imbalance which is impossible to control. Because of our unhappy experience with five post-operative deaths in five cases before we learnt to recognize the nature of this subgroup, fat studies are done in all patients when possible before they are submitted to surgery. Steroid therapy and limitation of fat intake have been helpful in the management.

Universal Ulcerative Colitis.

This is the subgroup commonly encountered. Dominantly the left colon and rectum are involved, but not infrequently the whole colon and the terminal one or two feet of the ileum are affected. Ileal involvement is not always apparent from the peritoneal surface. When the disease is mainly left-sided, conservative therapy is likely to be successful. However, whilst the patient is under treatment, and even after long remissions, the disease may be observed spreading to involve the whole colon. When universal involvement occurs medical therapy is less likely to be successful, unless perchance it is early in the course of the illness — say within the first six months. With improved surgical technique, the advent of the adherent bag and more adequate pre- and post-operative management, total colectomy and ileostomy is no longer a disaster or a tragedy. In retrospect it seems at times we have been too conservative, resulting in the sacrifice of both psyche and soma. Ileorectal anastomosis may have a place in segmental colitis, but, in our experience, not in universal colitis.

Undeniably the advent of steroid therapy both topically and systemically has altered the management and prognosis of this disease. In our hands retention steroid enemata play an important part in the early treatment, even when there is involvement well beyond the sigmoid. It is an excellent adjuvant to oral therapy. The orally administered sulphonamide "Salazopyrin" is also helpful.

Segmental Colitis.

This form of the disease spares particularly the rectum and distal part of the colon, involving the more proximal parts of the large bowel. Whilst the right half of the colon is predominantly involved, as recently described by Watkinson (1960), the transverse colon only may be implicated, or even a limited area of the descending colon. Whilst one would agree with Watkinson that the disease tends to spread ultimately to involve the rectum, and therefore at the segmental stage is ideal for resection and ileo-colonic or rectal anastomosis, this is rarely an urgent decision, and Yarnis and Crohn (1960), we believe, are correct in stating that conservative therapy is often rewarding. Crohn has stressed the lack of local signs such as tenesmus and excessive diarrhœa, and believes that constitutional features such as fever, joint complications and eye and skin lesions predominate. Whilst this is true, in our experience the disease at times has caused very little systemic upset or local manifestations, and at other times has been indistinguishable from universal colitis.

Procto-Sigmoiditis.

This is a chronic, somewhat indolent malady, affecting the rectum and sometimes spreading to the sigmoid. At times it is peculiarly localized to a small segment of the rectum. The mucosa is granular and hæmorrhagic in appearance, with at times some degree of ulceration. There are few if any systemic effects and the diarrhœa is mainly spurious, owing to the frequent passage of small quantities of blood and pus. The stool at times is constipated in type. During the management of some 40 patients with this disease, one has observed it to spread to involve the rest of the colon on two occasions only. Surgery was necessary once because of stricture formation and once for indolent deep ulceration. Fulminant colitis has not been observed as a complication, and usually the response to local steroid therapy is gratifying.

Fulminant Colitis.

This term is applied to a grave, often catastrophic episode in the course of nonspecific ulcerative colitis (Rankin *et alii*, 1960). It may occur as the first manifestation of the disease, later in the first attack or at any stage during the course of the established chronic disease. It is frequently fatal, as demonstrated by the death of 11 of our 22 patients who had this complication during 1950-1958. With increasing awareness of the clinical picture, more energetic restorative therapy with blood, albumin, electrolytes and antibiotics, and when necessary ileostomy with subtotal colectomy or procto-colectomy, the picture has altered. Because deep ulceration is characteristically present steroid therapy is avoided unless it is already being used in the management of the patient or adrenal failure is strongly suspected.

Clinically there is tachycardia and fever, with extreme apathy and weakness associated with electrolyte loss, moderate to pronounced abdominal distension due to colonic dilatation with mild colicky lower-abdominal pain and marked rebound tenderness, even in the absence of perforation or peritonitis. Whilst blood-stained diarrhœa is usual, sometimes a watery motion only is seen, or there may be the absence of diarrhœa. Sigmoidoscopically the rectum is usually involved but sometimes it is not, and in such patients the diagnosis may be baffling. A plain X-ray film of the abdomen, revealing pronounced dilatation of the colon, usually the transverse colon, has been the most helpful investigative procedure and causes minimum distress to the patient.

The decision as to whether to continue conservative therapy or invoke the surgeon's aid demands a nicety of judgement and perfect cooperation between the physician, the surgeon and the anæsthetist. Electrolyte restoration cannot be attained rapidly, and electrolyte studies are apt to be misleading in the early stages, before intracellular restoration has taken place. Unless forced by hæmorrhage, perforation or rapid deterioration of the patient's condition, surgery should be postponed for at least nine or ten days, to allow one to determine the result of intensive medical therapy. Failure by the patient to show definite improvement within this time is the indication for surgery.

Crohn's Disease.

Our experience with Crohn's disease has been much less extensive than that with ulcerative colitis, but the frequency of colonic involvement has been noteworthy. It seems regrettable that terms such as terminal ileitis or

regional enteritis have been used, as they tend to be misleading.

Intermittent bouts of fever with non-bloody diarrhœa and lower abdominal pain in a young person should make one suspect Crohn's disease. Obstructive symptoms are unusual in the early phase of the malady. Careful small-bowel studies, using the newer techniques with barium followed by iced water or saline, are sometimes rewarding. The presence of steatorrhœa indicates extensive involvement, whatever the radiological picture may be. With large-bowel involvement, diarrhœa may be more severe, with blood appearing in the stool. At times the clinical picture is indistinguishable from that of ulcerative colitis.

It is more than a quarter of a century since Crohn described this disease, and it is fair to say its management is still not clear. If the diagnosis is reasonably certain, surgery should be avoided, unless obstructive symptoms or fistula formation demands it. Steroids have not been particularly helpful in our experience, but prolonged bed rest does appear to be of value. When surgery becomes inevitable the problem of whether to perform an exclusive ileo-colostomy or a resection is still unsolved. As an emergency procedure ileo-colostomy seems the safer procedure, but finally resection may have to be done even some years later.

The Collagenoses.

Systemic lupus erythematosus has presented occasionally with a picture indistinguishable clinically from that of ulcerative colitis. One patient in particular was under observation and treatment for one year as an example of localized procto-sigmoiditis before presenting with purpura and hepato-splenomegaly. Her gastro-intestinal lesion still remains as a limited procto-sigmoiditis, which responds temporarily but adequately to steroid enemata. Systemic lupus not uncommonly causes abdominal pain and diarrhœa, but gross macroscopic lesions are uncommon. Hepatitis with jaundice is more frequent.

The Stevens-Johnson syndrome has also presented primarily as an ulcerative lesion of the colon, and only later have the other manifestations become apparent.

In polyarteritis nodosa abdominal pain is frequent and alimentary-canal hæmorrhage not uncommon, but on one occasion only has it presented as a rectal lesion simulating ulcerative colitis.

The association of malignancy of the colon with a syndrome resembling dermatomyositis has been described, but this has not been seen, nor has the disease manifested itself primarily as an intestinal lesion. On the other hand scleroderma or diffuse systemic sclerosis has presented as diarrhœa. Œsophageal symptoms with this malady are commonplace, but involvement of the small and large bowel is often overlooked. Constipation is more frequent than diarrhœa. The radiological findings (Meszaros, 1959) are characteristic, consisting of areas of sacculation mainly affecting the transverse and descending colons. The saccules are due to localized muscle atrophy, and are sometimes referred to as pseudo-diverticula.

These three major groups account for the majority of non-specific inflammatory lesions of the small and large bowel. They have this in common — that their management is at all times difficult and baffling. Perhaps we have progressed further with ulcerative colitis than with the other two groups because of steroids and improved surgical techniques. In Crohn's disease the only apparent advance has been a greater trend towards conservatism. Steroids are of doubtful value in scleroderma, but are helpful in systemic lupus and in polyarteritis.

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SURGERY AND THE CHILD.[1]

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The adult may safely be treated as a child, but the converse can lead to disaster.

—SIR LANCELOT BARRINGTON WARD.

FOR many years the medical problems of infants and children have been recognized to differ so extensively from the medical diseases of adults that a large specialty has developed. Children's hospitals have been built in all parts of the world to provide the special care sick children require.

The difference between pædiatric surgery and adult surgery is just as great as that between pædiatrics and adult medicine, even though this fact has not been so widely recognized. The majority of surgical specialties are regional, and have arisen because of the necessity for the acquisition of special skills for diagnosis and treatment over and above the basic requirements of the general surgeon. The limitations of pædiatric surgery are not anatomical or pathological, but temporal, and therefore it is not possible accurately to define its scope. Indeed this will be in large part determined by local factors.

Pædiatric neurosurgery can be performed by a neurosurgeon with a special interest in children or by a pædiatric surgeon with a special interest and adequate training in neurosurgery and the same is true of urology, cardiothoracic surgery, plastic surgery and orthopædics. It is the individual who is important. His basic training in general surgery must be comprehensive and it must have been followed by the acquisition of special skills relating to his specialty; these must be combined with a thorough understanding of the requirements of the whole child — physical and psychological. Add to this a large measure of gentleness and tolerance and a deeply-ingrained love of children and then grant him the opportunity to carry out his work under the best conditions and with the assistance of colleagues — anæsthetists, pædiatricians and residents — all specially experienced in their several fields and you will arrive at the correct answer to the problem — how can we best provide for the surgical ills of childhood? How can we most adequately correct the congenital malformations with which it is the misfortune of some children to be born?

Many children are operated on in small cottage hospitals or larger private hospitals in which no special provision is made for their requirements and in which they share wards with adult patients. Although this may be expedient and, at times unavoidable, it can fairly be said that it is difficult to see how all the needs of the child — surgical and emotional — can be provided for under such circumstances. Apart from this, sick children are cared for either in small units attached to general hospitals or, alternatively in independent children's hospitals (Figure I). The former can deal competently with many of the routine medical and surgical conditions met with in childhood. It is customary for a pædiatrician to be attached to such a unit to assist in the over-all care of its patients. It would be an advantage for surgeons attached to such units to undergo a period of training in a pædiatric hospital in order to make themselves thoroughly familiar with the over-all management of the surgical problems of childhood, to acquire an understanding of the standards they should achieve and of the limitations they should impose upon themselves in relation to the surgical procedures undertaken.

[1] Based on the Pfizer Guest Lecture delivered at the annual meeting of the New Zealand Pædiatric Association held at Christchurch, New Zealand, in July, 1960.

Independent Children's Hospitals.

Let us consider what the independent children's hospital should provide from the surgical point of view (Figure I).

Training in Pædiatric Surgery.

It should provide training in pædiatric surgery at three levels. (i) As already mentioned, it should provide a basic training for the general surgeon who will be including in his work some of the surgical problems of children. (ii) It should set out to provide an extensive training in pædiatric surgery for a limited number of men who intend to devote themselves exclusively to the care of children. It is a very real advantage that recognition

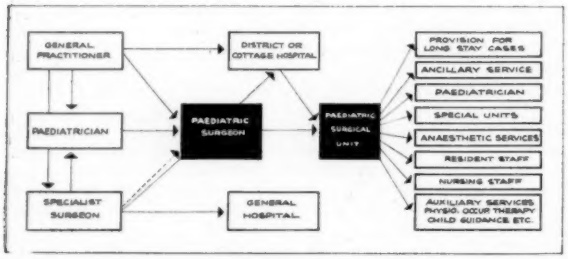

FIGURE I.

has been gained from the Royal Australasian College of Surgeons for selected children's hospitals in order that surgeons in training may be encouraged to spend a proportion of their time therein with the knowledge that their pædiatric surgical training will assist in qualifying them to take their fellowship examinations. (iii) It should provide undergraduate and post-graduate training in the principles of pædiatric surgery, to indicate the scope of this rapidly-expanding field in order to assist the general practitioner to maintain a high standard of diagnosis and management, since so much of his work relates to the care of children.

Planned Research.

It should carry out a planned programme of research and development at the clinical level.

Ancillary Services.

It should provide ancillary services geared to meet the special requirements of the child.

Radiological and pathological techniques in a children's hospital differ markedly from those employed in adult institutions, and the directors of these departments should be full-time people of considerable experience if the best results are to be obtained and accurately interpreted.

Auxiliary Services.

Auxiliary services must be available to meet the special needs of the child: (i) a child guidance clinic; (ii) occupational therapy and physiotherapy by personnel experienced in the handling of children and designed to meet the special needs of children; (iii) special schooling and controlled play activities, particularly for long-stay cases; (iv) facilities for the construction of splints and orthopædic appliances and special shoes; (v) almoner services. These are only some of the special services that should be available.

In addition, the pædiatric surgeon should be able to discuss appropriate aspects of child care with the personnel of these departments when the necessity arises.

It is also highly desirable that special provision should be made for long-stay cases, particularly orthopædic. Ideally this should be in a separate unit, away from the main hospital in pleasant surroundings and divorced from hospital atmosphere, and with all necessary facilities for such therapy as these children may require to carry out work and play appropriate to their age and physical condition. It may possibly be more economical, or more convenient from the administrative point of view, to have such long-stay units in relatively close proximity to the main hospital. Nevertheless, such a unit should be completely separate and distinct from the main hospital with adequate grounds and play facilities.

Staff.

It is a great advantage to have a nursing and resident staff which is specially trained in all aspects of child care and who have developed a special awareness of the physical and emotional needs of the child.

Special Units.

Special units should provide a highly specialized diagnostic and therapeutic service in certain fields and should also undertake developmental and research work within that field. The number and scope of these special units will, of course, vary from hospital to hospital, according to local needs — for example, cardio-vascular, thoracic, plastic, neurosurgical, urological, burns and neonatal units. It is already recognized that established specialties such as ophthalmology, oto-rhino-laryngology and orthopædics should be separately represented.

Whether such units should function purely as consultative clinics or should, in addition, undertake the investigation and treatment of cases referred to them would depend very much on local conditions and on the nature of the service provided.

The Provision of a Pædiatric Surgical Service.

There is a growing weight of opinion among informed members of the profession, both in this country and overseas, that a comprehensive surgical service cannot be supplied on an exclusively honorary basis. It is necessary for a nucleus of highly-trained and dedicated individuals to be geographically full-time within the hospital in order to develop and maintain the three components of a complete service.

The Provision of the Desired Standard of Patient Care.

The requirement here is for a full-time pædiatric surgeon who would administer the surgical section of the hospital and develop his own particular field. In a large unit one or two assistant pædiatric surgeons (full-time) would also be needed. These individuals should have the right of limited private practice, which they should restrict as far as possible to their own special fields of interest. There are very valid reasons for this as pointed out by Potts (1950) and Collins (1955). In addition to this nucleus of "near full-time" staff there should be a proportionate number of part-time and visiting staff, all of specialist status and engaged wholly in the practice, teaching and development of pædiatric surgery. This would be possible only if some remuneration were received for these services.

It is recognized that the problem of combining service to the hospital with the necessity for earning a living is one that confronts all young specialists, but the difficulties are relatively greater for the pædiatrician. This is so because the financial burdens of the majority of young married people with a growing family inevitably require a large proportion of them to seek public hospital care when the need arises.

Teaching.

Teaching is primarily a university function for which the hospital should provide certain facilities. Undergraduate teaching should be caried out by both full-time and visiting staff and on both in-patients and out-patients. However, teaching rounds should, as far as possible, be separate and distinct from patient care and the surgeon carrying out such a function should utilize a small number only of patients appropriate for teaching purposes. Post-graduate courses should be arranged at regular intervals and facilities for post-graduate training should be available, not only for regular resident staff but also for surgeons who

are anxious to acquire further training in pædiatrics, in the form of fellowships.

In order to integrate all aspects of teaching it would be an advantage for the pædiatric surgeon to have some university affiliation.

Research and Development.

The important field of research and development should be in the hands of a pædiatric research surgeon, who would preferably retain an interest in clinical work. Under his direction would be a small number of full-time research fellows of varying degrees of seniority, but only a very limited proportion of these would be making research work a career. Registrars should be encouraged to undertake a full-time research position for at least six months prior to the completion of their training. In addition, a certain number of part-time posts should be available for junior consultants to carry out developmental work related to their particular field. Research funds and facilities should be available for any department in the hospital with an appropriate project and a suitable research worker in that field.

It has been suggested that the establishment of a comprehensive pædiatric surgical service as outlined above could best be met initially by the appointment of an associate professor of pædiatric surgery. This would be in line with current university practice in this country and might well be the most suitable and practicable manner of providing such a service. Such an appointment would form a useful link between the Department of Child Health and the Department of Surgery at a university level and would replace the present lecturer in pædiatric surgery. Working in close cooperation with the Professor of Child Health a great deal could be done to integrate the teaching of pædiatric surgery with the remainder of the pædiatric course and also in conjunction with the teaching of general surgery. Such an appointee could also carry out a valuable function in initiating and integrating research and development in the field of pædiatric surgery until such time as the volume of work being undertaken warranted the appointment of a full-time pædiatric research surgeon. It is possible that he could also assist in the development and integration of surgical work at a clinical level.

It is realized that the provision of the type of service detailed above requires a significant expenditure. However, in view of the improved standard of patient care and teaching that could be achieved, such additional expenditure should receive serious consideration. The cost involved in the appointment of an associate professor would need to be met from university sources and any research appointments would have to be defrayed from available research funds. Any full-time staff appointment would need to be made with the support of the Hospitals Commission, but it is possible that sessional payments to staff could be made if consideration was given to the removal of restrictions at present imposed on the collection of medical benefits from insured patients in public wards. If these fees were recoverable, they could form a staff fund out of which visiting staff could be paid on a sessional basis.

Total Child Care.

There is another aspect of child care that I should like to touch on as a pædiatric surgeon and this is what Professor Ashley Weech refers to as "care of the whole child". It is only too easy to develop in our student days the habit of thinking in terms of diseases rather than individuals — "the interesting gastric ulcer in Ward I or the unusual appendix that was admitted last night". In dealing with children we must remain at all times acutely conscious of the implications of illness, of hospitalization and of surgery as they affect the whole child.

The Doctor-Child Relationship.

The Bible speaks of four types of children — the wise child, the simple child, the wicked child and the child who has not the capacity to inquire. The first and last of these give us very few problems. To the older child of adequate balance and intelligence it is possible to explain the reason for hospitalization or surgery. To the infant explanation is neither possible nor necessary. The provision of a feeding or appropriate sedation will usually enable a satisfactory clinical examination to be made, and a suitable mother-substitute during his stay in hospital will answer most of his emotional needs. The simple child — out of infancy and not yet capable of adequate understanding — who is intensely dependent on his mother and his familiars provides the test of the true pædiatrician. There are those among us who can regularly win the confidence of these small patients. This ability is quite individual and, as James Barrie said: "If you have it you don't need anything else; and if you don't have it, it doesn't much matter what else you have."

There are few wicked children, but we all see our share of difficult ones. The fault here usually lies in the over-anxious or unintelligent parent. Fortunately it appears to be a diminishing problem with better parental education and an increasing awareness, both by physicians and parents, of the emotional problems of childhood.

The Preparation of a Child for Operation.

Preparation for operation is an extremely important and often neglected facet of total child care. In the first place we should always remember the presence of the child. Nothing should be said in his hearing that he is not meant to hear or that might possibly be misinterpreted. In general it is wise to discuss matters with the parents alone. If it is necessary for a child to be admitted to hospital for surgery then a frank and simple explanation should be given, appropriate to the child's ability to understand, a short time before he enters hospital. This is best done by the parents, but it is the surgeon's duty to advise them of this and indicate when and how it should be done.

When the child enters hospital it should be ascertained that he has indeed had an explanation of the reason for his admission and much can be done by an intelligent ward sister to dispel any fears or uncertainties that may be present.

Great care must be taken with premedication and anæsthesia—the hallmark of a good anæsthetic is that the child does not know he has had it. The child should go to sleep in his bed and wake up in his bed —he should not see the inside of an operating theatre. A certain amount of post-operative pain is unavoidable, but this can be greatly minimized by gentle surgery and thoughtful analgesia. In short, the traumatic experience, physical and emotional, should be as minimal as it is possible to make it.

The Child in Hospital.

We should always be acutely aware of the potential risks confronting a child in hospital. The dangers to the infant are primarily infective — gastro-enteritis and penicillin-resistant staphylococci are a very real anxiety, and stringent precautions should be taken to minimize the risks of cross-infection. In general, infants should be admitted to hospital only when strictly necessary and then for as short a time as possible.

The main problem relates to the sudden disruption of the child's normal mode of life and the effect is directly related to his degree of dependence and his ability to comprehend and to adjust. We have all seen sensitive, intensely dependent three- to six-year-olds who have returned from hospital — often after a short visit and a relatively minor procedure — with night terrors, fear of the dark, habit spasms or reversion to more infantile behaviour patterns and, above all, a refusal to let mother out of sight.

How can all this be minimized? We can imagine the child surrounded by a series of environmental influences, the outer ones affecting him less deeply than the closer and more intimate attachments. Hospitalization will cut across all of these (Figure II). The comprehension of the small infant does not reach beyond the inner zone, and even here it is not firmly fixed, so that the provision of a mother-substitute is not difficult — but it must be done.

An infant in hospital for any length of time without mother-love will not do well.

In children of school age careful explanation and anticipation of any fears and anxieties will overcome most problems.

In all instances, but above all with younger children, regular visits, particularly by the mother, are of great importance. Some familiar toy should accompany the child

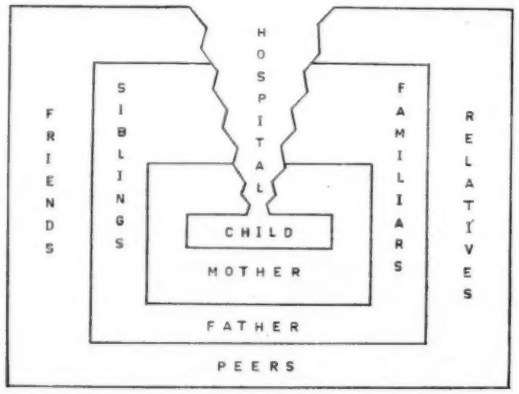

FIGURE II.

to hospital. Messages from brothers, sisters and friends should be encouraged. As much as possible of the child's immediate environment should be transferred with him to hospital and he should be made to feel sure that it all awaits his return home, just as it was before he left.

My theme has been total child care. It should be remembered that surgery for the child must be precise, intelligent and gentle. The results must be good enough to last for sixty years or more, and must be as nearly perfect from the cosmetic and functional point of view as it is possible to make them. Morbidity and mortality must be reduced to an acceptable minimum. Over and above all this the emotional needs of the child and the anxieties of the parent must be anticipated and provided for.

Standards have already been set in the field of pædiatric surgery. Those of us who are prepared to undertake the grave responsibilities involved in the surgical problems of childhood must be aware of these standards and must have the training and the facilities to maintain them.

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NOTES ON A THERAPEUTIC COMMUNITY: I. PRELIMINARY REPORT.

By N. T. YEOMANS, M.B., B.S., D.P.M., B.Sc.,

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THE Neurosis and Alcoholics Unit at the North Ryde Psychiatric Centre was opened for patients on August 25, 1959, although male patients only were admitted until the female section began functioning in October, 1960.

The unit, Fraser House, consists of 78 beds, 39 being for males and 39 for females. Sleeping areas are separate for the two sexes, but the living and dining areas are common to both.

The unit functions using the concept of the therapeutic community with community and group psychotherapy each day. The average period of in-patient therapy is from three to six months. There is a dominantly male nursing staff on the male area, and a female nursing staff on the female area, but during the period of its operation there has been a gradual synthesis of the two groups of nurses into the one functioning team. The unit contains four doctors at present, each with approximately 20 patients (10 male and 10 female) under his or her care. A social worker is also stationed at the hospital, a proportion of her time being spent in this unit.

The method of treatment is based on the utilization of the therapeutic community. This may be approached from three levels: (i) community therapy — that is, groups consisting of the entire staff and patient population of the unit; (ii) classical group psychotherapy — that is, groups of approximately six to 10 people, as in the primitive family; (iii) individual psychotherapy — that is, interviews between two people, either between two patients, a patient and a member of the nursing staff or a patient and a member of the medical staff.

We shall consider first community therapy meetings. Each week-day morning all the patients and the staff on the ward meet in the meeting hall for one hour from 9.30 to 10.30 a.m. This group is for the discussion of personal and social problems of the unit except on Fridays, when the hour is devoted to a ward discussion and completely superficial issues are permitted. If domestic problems in the ward cannot be handled by Friday's group alone, then the first half of the Tuesday group is allowed for discussion of these matters.

On Mondays, Wednesdays and Thursdays problems of ward routine are not permitted to enter the discussion except when they involve very intense emotional relationships between the patient, and in reality reflect their psychopathological difficulties.

In community therapy the therapist must realize that, unlike the classical, small, face-to-face group, he is sometimes unable to be aware of all the subgroups that are forming in the hall, therefore the doctors and staff are ranged at regular intervals so that all areas of the room can be observed. Since subgrouping tends to form at the four corners of the hall, the four members of the medical staff are seated in those areas. Male and female nursing staff are equally distributed around the walls amongst the patients. Thus most discussion and activity, if not personally observed by me, is observed by at least one member of the staff, either nursing or medical. In these groups therapy sometimes becomes subgroup therapy in a large group. Topics amongst subgroups are matched against each other, or representative members of these subgroups are brought into discussion, argument or personal involvement, rather than an attempt being made to emphasize individual relationships amongst the patients.

From 11.30 a.m. to 12.20 p.m. each day all the patients are divided into small groups and receive group psychotherapy. These are conducted by the medical and nursing staff. The groups are divided according to social categories and not according to individual diagnosis. Thus for most meetings a particular patient may be a member of the teenage group, the intermediate single group, or the older married group, according to his age and marital status. One day a week the groups are redivided according to sex, so that each group contains patients of the one sex, the therapist and any available observer being, if possible, of the same sex. Also at least one day a week each doctor takes a small group consisting entirely of his own patients, while the remainder of his patients are again divided amongst groups according to their social categories.

The second psychiatrist in the unit prefers to confine his group treatment largely to his own patients, who are divided into two groups of approximately 10 each. They see him alternately for four days of the week, and on the fifth go into the single-sex groups, as with the other patients. The social worker, who attends the community meeting on Fridays, also takes a married couples' small

group on Tuesdays. Further subdivision of groups according to class, religion and other important social categories are contemplated for the future, when the relative value of these becomes more clear.

Individual interviews are available for all patients, particularly if an emergency arises in their treatment. However, it is stated explicitly before admission to hospital that no discussion is confidential only to the doctor and his patient, or to the nurse and any particular patient, but that all topics will be expected to be brought up ultimately in the groups, either the large or the small ones. Only in the case of an undiscovered felony is exception made, although further action may be necessary in such a case. Nurses have many informal discussions with individual patients, although on the whole they are encouraged to foster inter-patient relationships as much as possible. For example, if a nurse and a patient are talking together and another patient comes in, the nurse is expected to attempt to get these two patients involved in discussion and conversation, and, if he finds his own presence unnecessary, to go elsewhere to pursue his therapeutic endeavours.

From 12.20 p.m. till after 1 p.m. each day, the staff meet and discuss the morning's groups, individual patients and the general handling of psychotherapeutic techniques. All the groups are recorded in appropriately labelled record books. There is a nurses' case history for every patient, and discussion in a group which reveals largely the individual history or dynamics of one patient is expected to be recorded in those books rather than in the group books, which are confined largely to group themes.

Every Monday afternoon there is a staff conference, in which ward problems, therapeutic technique and difficulties experienced by the nursing staff in the unit are discussed. Each alternate Thursday afternoon there is an additional more didactic and clinical meeting, at which any particular topics (such as techniques of group psychotherapy, homosexuality and anxiety states) are discussed. Again, any individual member of the staff who is disturbed by the pressure of work and by the intense emotional relationships experienced in the unit can obtain an individual interview with myself to discuss and be helped with these matters. More seriously disturbed members of staff may also receive individual or group psychotherapy.

The selection of patients for treatment in this unit is a very important factor in determining the success or otherwise of its function as an open therapeutic community. As the name Neurosis and Alcoholics Unit implies, the patients tend to fall into two fundamentally different categories corresponding to the two groups of personalities and societies described by Ruth Benedict (1934), namely the Apollonian and the Dionysian. The first refers to those communities and societies whose modal personality may be described by such terms as conscientious, self-controlled, industrious and temperate, or in Freudian terms, having a strong superego. The second group, by contrast, can be described as impulsive, emotionally labile and intemperate, or lacking a superego.

In our society, when the characteristics are carried to extremes, these two groups of people are represented respectively by those patients who go to mental hospitals and those deviants who go to gaols, and it is not culturally insignificant that these fundamentaly different groups of institutions exist. Thus to produce a balanced community it is necessary to select patients such that approximately 50% of them are of one type and 50% are of the other. We may first consider the Dionysian or impulsive type of neuroses and character disorders. In the case of alcoholics, since this is an intensive treatment centre, it is our policy to admit those cases who have failed in treatment with Alcoholics Anonymous, the Langton Clinic and/or other institutions (such as public or private hospitals), provided that there is no serious organic deterioration. Thus we handle those so-called hopeless patients, often of no fixed abode, who travel from one institution or private hospital to another and are more of an economic drain on the community, on resources of Alcoholics Anonymous and on the facilities of mental hospitals than most other alcoholics put together. It is felt that these people need profound personality changes to provide any possibility of lasting and definite improvement. Again, both as a service to the community and also to keep up the proportion of outgoing impulsive patients, referrals are seen from a number of correctional institutions and other agencies dealing with social deviants. For example, an endeavour is made to keep approximately three or four beds filled with homosexuals in intensive community psychotherapy.

Another group of patients of which we also tend to have a large number are suicidal depressives. A proportion of ambulant schizophrenics are also under treatment.

Since all but half a dozen beds in each section are in four-bed room dormitories, most patients are in the latter, and, except in the case of extreme physical emergencies, only patients who are ready to leave hospital or who are working briefly away from hospital before discharge, sleep in single rooms. The rest of the patients sleep in dormitories, with the beds again allotted according to the age and marital status of the patient in question, and not according to chance or the whims of patients' antipathies.

In the general running of the ward, modifications of routine are determined by democratic vote usually initiated by the patients. However, if a greater than two-thirds majority at the staff conference vote against such a change it can then be vetoed. If this leads to a two-thirds majority of patients being in favour of it, then a conference of all staff and patients is called to decide the issue. Once patients have made a ruling for the ward routine including discipline, it must function for three months before it can be changed and a two-thirds majority is again needed to alter it. Almost all the ward rules have, in fact, been made by the patients. The latter have also established a small canteen which is run by the patients' Canteen Committee and which provides funds for the patients' Welfare Committee to allocate to various social functions, again under the patients' control. A number of them have been greatly helped in their treatment after appointment to the patients' committees. However, this also allows a number of patients to maintain a detached intellectual approach to their treatment. To circumvent this it was agreed that no patient should remain on either committee for over three months, after which time he must withdraw.

This preliminary decription of Fraser House outlines but sketchily the many issues and problems that have arisen. Concepts borrowed both from sociology (Broom and Selznick, 1958; Sprott, 1958) and from anthropological studies of small communities (Jacobs and Stern, 1958; Firth, 1951) have been extensively utilized, and at the individual personality level the psychoanalytic school of Franz Alexander (1949), with its emphasis on corrective emotional experience rather than on insight, has furnished a number of guiding principles.

Gratifying clinical improvements are beginning to appear, but their permanence and statistical validation is a matter for the future. Research observations conducted by the Department of Applied Psychology of the University of New South Wales over the last 12 months will help to define and clarify the functioning of the unit and its therapeutic effects, as will the gradually accumulating record of patients treated here.

Conclusions.

For the last 18 months a therapeutic community has been evolving at the Neurosis and Alcoholics Unit of the North Ryde Psychiatric Centre. Its neonatal period has been described, and further articles on individual topics are planned to follow.

Acknowledgement.

I am indebted to Dr. D. S. Fraser, Director of State Psychiatric Services, for permission to publish this article.

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CORONARY ARTERY DISEASE IN GEELONG.[1]

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THE material for this paper was obtained from records of 1000 patients suffering from coronary artery disease examined over a period of 10 years in a consulting practice in Geelong. Geelong is an industrial provincial city of 100,000 people, surrounded by an agricultural district. Of this population of 100,000, 32% are over the age of 40 years, so the patients in this series represent 3% of their age group. The total deaths in Geelong from coronary artery disease over this ten-year period numbered 1388, of which the 324 deaths in this series represented 23%. This series therefore represents 23% of the total figures for coronary artery disease over this period.

Racial Distribution.

In Geelong the population includes 12% of non-British European migrants, but in this series there are only 6% of these migrants. The difference is significant and may reflect the difference in their diet from that of Australians in the war years and post-war period. However, the Dutch, who like their fats, are represented by only seven patients.

Occupation.

Office workers predominated over manual workers in the proportion of 3:2. No single occupation appeared with significant frequency, although a motor company, a very large and most highly organized industrial concern, seemed to contribute more than its share. Housewives were classified as manual workers.

Sex Distribution.

In this series males were afflicted more often than females, and accounted for 66% of the patients. The mortality rate over the ten-year period was 35% in males, and 28% in females, with 71% of males represented in the 324 deaths. This indicates that coronary artery disease is not only more frequent, but also more lethal in males.

Age Distribution.

No attempt has been made to separate the patients into narrower age groups than decades, with the great majority of cases, 644 (64·4%) occurring in the sixth and seventh decades. Only 24 patients (2·4%) were under the age of 40 years.

The mortality figures showed a steadily increasing death rate with increasing age in all four groups, myocardial ischæmia and myocardial infarction, male and female. There was no significant difference in the rate of increase in each age group (Figure I).

Lesion.

A distinction was made between myocardial infarction and myocardial ischæmia characterized by angina of effort.

Myocardial Infarction.

Five hundred and twenty-four patients, of whom 377 (71%) were males, suffered from myocardial infarction, but in 80 (15%) of these the infarction was an old one, found on routine examination, and not requiring any special treatment. The original episode had often been missed, sometimes being diagnosed as pneumonia from which recovery had been incomplete. Patients who stated that they had previously suffered myocardial infarction, but who sought advice for some other condition, were not included in this series.

One hundred and forty-nine of the patients with myocardial infarction had been previously included in the series while suffering from myocardial ischæmia, and a further 262 patients who presented with myocardial infarction admitted to previous symptoms of myocardial ischæmia. This leaves a residue of 113 patients in whom acute myocardial infarction was the first indication of coronary artery disease (Figure II).

There was no significant variation in the seasonal incidence of acute myocardial infarction, except for a mid-winter peak.

The Attack.

In 25 patients (6%) acute myocardial infarction was painless, and presented as a sudden episode of congestive cardiac failure or pulmonary œdema. However, pain was usually prominent, being retrosternal with radiation to the neck and arms, crushing or boring in nature, prolonged often for some hours and resistant to administration of "Trinitrin" (glyceryl trinitrate). In this series the pain much more commonly followed than accompanied effort, and in 30% of cases seemed to bear no relation to any particular effort. Several episodes of infarction occurred after a period of unusual emotional or mental stress, and one followed a blow on the chest in a motor-car accident.

Vomiting was common in acute myocardial infarction and so was air hunger rather than dyspnœa, but there were few other symptoms which occurred with any frequency. Shock varied from complete absence to a degree sufficient to produce a fatal outcome in a few hours and when the patient was seen within an hour of the onset the only constant physical signs were congestion of the jugular veins and sweating.

It was often difficult to tell if a normal blood pressure indicated a mild attack or a drop from a previously hypertensive level, which may be suggested by outward displacement of the apex beat and the presence of a soft apical systolic murmur with accentuation of the second heart sound at the aortic area.

A systolic blood pressure of 100 mm. of mercury or less was a useful confirmatory sign of myocardial infarction. Ninety-nine patients (22·5%) in this series were demonstrably hypotensive at the onset of acute myocardial infarction, and many of these never regained their former blood pressure levels.

A presystolic gallop rhythm was heard in 13 cases (3%), but the most common disturbance of rhythm was the presence of ectopic beats, which were found in 53 patients (12%). Atrial fibrillation occurred in 39 patients (9%), some form of heart block also occurred in 39 patients, and paroxysmal tachycardia was found in 10 (2%). The mortality rate in patients with any type of disorder of rhythm (atrial fibrillation 72%, paroxysmal tachycardia 70%, gallop rhythm 61% and ectopic beats 56%) was greater than that of the series as a whole (Figure III).

A Latvian man, aged 57 years, suffered severe retrosternal pain on July 1, 1957, after two weeks of præcordial discomfort on effort. On examination he was found to have an irregular pulse, and his blood pressure was 140/90 mm. of mercury. No shock was present. The electrocardiogram was typical of acute anterior myocardial infarction, and confirmed the presence of atrial fibrillation. His blood pressure dropped to 90/60 mm. of mercury and remained at this level. He was treated with anticoagulant drugs, diuretics and quinidine sulphate, but both the atrial fibrillation and hypotension persisted for four months. Sinus rhythm then returned without further treatment, the blood pressure rose to 140/80 mm. of mercury and his general condition improved rapidly. He is now back at work feeling quite well, having overcome a combination of two factors usually associated with a poor prognosis—hypotension and a disturbed cardiac rhythm.

Other Modes of Presentation.

Fifteen cases of unrecognized myocardial infarction were seen in patients suffering from diabetes mellitus, the infarct being found in routine electrocardiograms taken in middle-aged diabetics whose diabetic condition

[1] Based on a paper read to the Asian-Pacific Congress of Cardiology in June, 1960.

had become unstable. In six cases in this series the infarction was considered to be the cause of the disturbance of the diabetic state, and since attention has been drawn to this association, many other similar cases have been found.

A diabetic man, aged 64 years, complained of pain of cardiac type. An electrocardiogram was normal and he was told to moderate his activity. His diabetes remained stable on 24 units of regular and protamine zinc insulin daily. Seven years later, on June 25, 1958, he was admitted to a private hospital for stabilization of his diabetes mellitus after complaining of increasing glycosuria and dyspnœa both on effort and at night, for two weeks. Examination revealed a moderate degree of congestive cardiac failure.

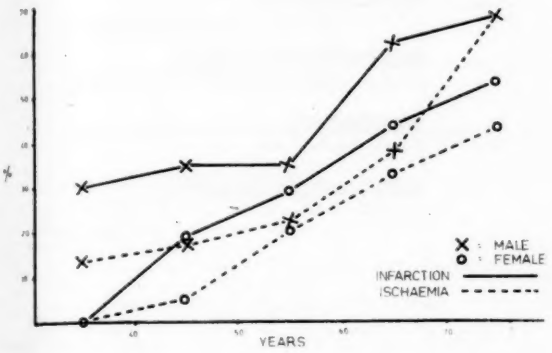

FIGURE I.

Mortality rate for myocardial infarction and myocardial ischæmia for the ten-year period.

Blood sugar level estimations varied from 200 to 352 mg. per 100 ml., and a routine electrocardiogram showed right bundle branch block, with deep *Q* waves in Leads V1 to V4, and with *ST* segment elevation and *T* wave inversion in the same leads. A diagnosis of silent acute myocardial infarction was made, and he was treated with bed rest for three weeks, as well as phenindione, and diuretics. His cardiac condition improved and his glycosuria gradually disappeared without any change in his diabetic routine. Three months later he was quietly active, his urine tests gave satisfactory results, and his electrocardiogram showed only inverted *T* waves in the anterior leads. Unfortunately at this time he changed his medical attendant and was subsequently told that he had neither diabetes nor heart disease. He ceased having treatment, and died two months later.

In four cases the infarction occurred within 48 hours of a major surgical procedure, and was considered to have been precipitated by hypotension in the post-operative period. In the presence of coronary atherosclerosis hypotension is not well tolerated, and results in reduction of the coronary blood flow below the critical level at which infarction may occur.

The patient was a woman, aged 60 years, who was seen on August 17, 1957, complaining of retrosternal pain radiating to the left arm. The pain was induced by effort, and lasted only a minute or two. There was a strong family history of coronary artery disease. On examination, the blood pressure was 170/100 mm. of mercury, but no other abnormality was found. The electrocardiogram showed *ST* depression in Leads I, aVL, V4, V5 and V6, and *T* wave inversion in Leads III, aVF, V4, V5 and V6. A diagnosis of myocardial ischæmia was made. The patient was next encountered at 5 a.m. on June 21, 1960, having had an operation for repair of a hiatus hernia on the previous day. In the post-operative period her systolic blood pressure had remained at about 100 and 110 mm. of mercury all day, and at 2 a.m. the following morning she had collapsed. On examination she was pulseless and her blood pressure could not be recorded. Her electrocardiogram was typical of an acute anterior myocardial infarction. She died four hours later, having failed to respond to "Levophed".

In only one case in this series was the patient referred with a provisional diagnosis of lobar pneumonia, but eight other patients, whose electrocardiograms showed the signs of old myocardial infarction, had no history of acute infarction, and no significant illness other than an attack of lobar pneumonia within the previous few years. As previously stated, the attack of pneumonia is thought to have been the illness caused by the acute infarction.

A female, aged 60 years, complained of left-sided chest pain, malaise, cough and sweating. On examination she was found to have a temperature of 38° C., her pulse rate was 100 per minute and her respiratory rate was 22 per minute. Moist sounds were heard at the base of the left lung posteriorly, her blood pressure was 150/100 mm. of mercury (previous readings had been 200/100 mm. of mercury) and a white-cell count showed a total of 14,000 cells per cubic millimetre, of which 80% were neutrophils. A diagnosis of left lower lobe pneumonia was made, but an electrocardiogram three days after the onset showed the typical pattern of acute posterior myocardial infarction. Two years later she felt well and was leading an active life, but she had developed a gallop rhythm, and her electrocardiogram showed left bundle branch block. She is still alive after another 10 years and has survived an abdomino-perineal resection of a carcinoma of the rectum.

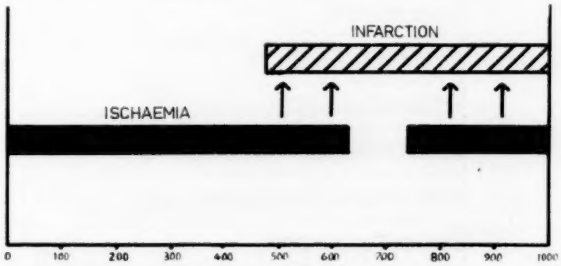

FIGURE II.

Overlap of infarction and ischæmia. Of the 1000 patients, 149 presenting with ischæmia developed infarction. Another 262 presenting with infarction had previously had symptoms of ischæmia.

Management.

When treated early in the attack (during the phase of pain and shock) the patient was given 10,000 units of heparin by intravenous injection, 0·25 grain of morphine by subcutaneous injection and 1 ml. of mephentermine ("Wyamine Sulphate") by intramuscular injection. If the degree of shock was such that pressor agents were required transfer to hospital was effected, but in the so-called good-risk patients treatment was carried out at home in the majority of cases. This treatment consisted of bed rest, with two further injections of heparin in the first 24 hours and phenindione ("Dindevan") in an initial dosage of 200 mg. followed by 150 mg. in the next 24 hours, the dosage thereafter being controlled by prothrombin-level estimations. The optimum figure was considered to be between 20% and 30% of normal.

Anticoagulant therapy was used in 105 cases (20%) in which group there was a mortality rate of 41%. This is not a significant figure, as this treatment was omitted in some of the mildest cases, and used as a routine in severe ones.

If there was any disturbance of cardiac rhythm, quinidine sulphate (0·2 gramme) was administered orally three times daily. Mild sedation with phenobarbitone or chlorpromazine was found useful in many cases. The use of "Levophed" was restricted to those patients who did not respond to other pressor agents and the results were not good. It is possible that the earlier use of "Levophed" might have resulted in better figures.

All patients were encouraged to move their legs through a full range of movement several times daily, in order to minimize the risk of pulmonary embolism from thrombosis of the leg veins. Movement of the arms and warmth to the shoulders helped to prevent the development of frozen shoulder.

The average duration of bed rest was four to six weeks, during which gradually increasing activity was permitted

in bed, until in the last week the patient was sitting in a chair while the bed was made. The period of bed rest became steadily shorter as the series progressed, and the most recent patients have been allowed up after two weeks, provided there has been no evidence of hypotension, cardiac arrhythmia or congestive cardiac failure. Throughout the illness, the use of a bedside commode was preferred to that of a bed-pan. At one stage of the series a test was carried out which showed that the degree and duration of tachycardia and dyspnœa was much greater after the use of a bed-pan than it was after the use of a bedside commode. The patients themselves voted unanimously for the commode.

The great majority of patients felt quite well within a week of suffering acute myocardial infarction.

Convalescence consisted of four weeks of gradually-increasing activity followed by a two-week period of full activity without work. At the end of that time the 86 patients (20%) who returned to their previous employment were fit to do so.

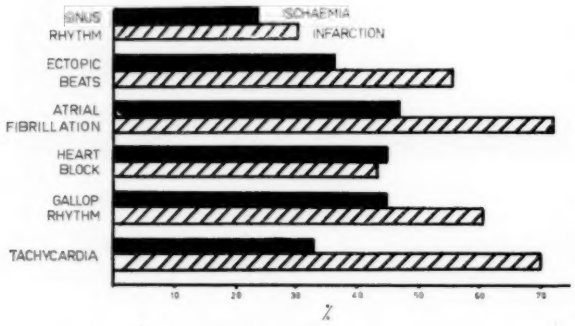

FIGURE III.
Effect of disturbance of rhythm on mortality rate.

Other Treatment.

Two patients only in this series were subjected to surgical treatment. One, a man, aged 43 years, who had been incapacitated by cardiac pain after recurrent myocardial infarction, improved dramatically after the instillation of asbestos powder into the pericardial sac, and is now doing a full day's work without distress. The other, a man, aged 56 years, improved slowly after undergoing cervical sympathectomy for persistent cardiac pain following myocardial infarction.

Fourteen patients have had long-term anticoagulant therapy, with mixed results. One woman, aged 41 years, has taken phenindione for over two years; cardiac pain returns if she ceases the medication. As she has moved to a country area, where regular prothrombin estimations are impracticable, the dosage has been reduced until her prothrombin level, taken every three months, is 75% of normal. One can only assume that the benefit from such a dose is entirely psychological.

Another woman, aged 63 years, developed such an acute anxiety state about her prothrombin figures that phenobarbitone was substituted for the phenindione. The result of this change of therapy has been very satisfactory.

The Electrocardiogram.

A routine electrocardiogram was taken as soon as the diagnosis was suspected, and it was considered to confirm the presence of infarction if abnormal *Q* waves with convex elevation of the *ST* segments or *T* wave inversion were present. Three patients whose symptoms suggested recurrent acute myocardial infarction showed this typical pattern in anterior chest leads, but the serum transaminase levels were not elevated, and it was subsequently proved that the pain was due to another cause (gall-bladder disease in two, and thoracic spondylitis in the other). In each case the elevation of the *ST* segment had persisted from a previous infarction. During the illness the *ST* segments tended to return to the isoelectric line, while the *Q* waves and inverted *T* waves became more prominent. In six cases (1·5%) the initial electrocardiogram was within normal limits, but the signs of acute myocardial infarction appeared later. However, one man had a persistently normal electrocardiogram until he died a week after the onset of his illness, when at autopsy a large recent infarct was demonstrated.

A man, aged 62 years, collapsed on March 11, 1959, after having suffered vague pains in the neck and throat for the previous month. In his severe attack he was not unconscious, but complained of intense dyspnœa. He had no

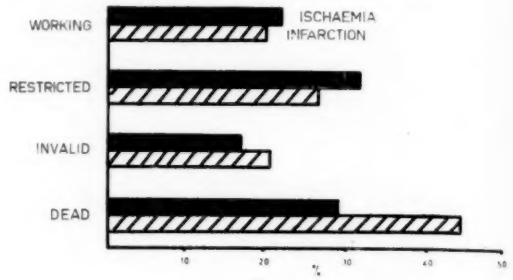

FIGURE IV.
Results after ten-year follow-up period.

pain. Neither pulse nor blood pressure was detectable. Next morning he was shocked and cyanosed. The pulse rate was 120 per minute and the blood pressure was 60/0 mm. of mercury. His heart sounds were faint and distant, but clear, and the jugular veins were distended to a height of 2 cm. The electrocardiogram was normal. On March 13, 1959, he was still hypotensive, his serum transaminase levels were normal (the serum glutamic oxaloacetic transaminase level was 38 units, and the serum glutamic pyruvic transaminase level was 16 units) and his electrocardiogram was again normal. On March 17, his electrocardiogram was unchanged. On March 21, he died, and autopsy revealed a large anterior myocardial infarct, with hæmopericardium.

In six other cases, a tracing taken two to three years after a well-established attack of myocardial infarction was completely normal, and showed no indication of coronary artery disease.

A man, aged 50 years, stated that he had suffered retrosternal pain for six months, which was thought to be due to a peptic ulcer. On June 10, 1957, he was examined the day after having suffered severe, gnawing, retrosternal pain which had lasted four hours and had made him vomit. On examination, he was not shocked, but his blood pressure was 100/90 mm. of mercury. There was no congestive failure, and his electrocardiogram showed deep *Q* waves and elevated *ST* segments in leads V1 to V4. A diagnosis of acute anterior myocardial infarction was made and he was treated with anticoagulants. On June 28, a further electrocardiogram showed deep *Q* waves as before, but now deeply-inverted *T* waves were also present in Leads I and aVL, and all V leads. He made a good recovery and returned to work. On November 19, 1958, a routine follow-up electrocardiogram taken during an investigation of dyspepsia was quite normal, with no trace of his myocardial infarction. On March 27, 1959, he died of a carcinoma of the duodenum, and at autopsy no trace of myocardial infarction could be found.

In the last few years it has become apparent that the serum transaminase levels are a very reliable diagnostic test in acute myocardial infarction, and in the 48 patients in which the test was done the results agreed in every case with the ultimate diagnosis. The transaminase level rose again in the second week in two patients who had recurrence of pain, without any demonstrable change in the electrocardiogram. This was considered to be due to death of islands of surviving muscle tissue in the infarcted area. Elevation of the erythrocyte sedimentation rate and leucocyte count occurred in those patients in this series in whom the tests were performed.

Complications.

By far the commonest complication was congestive cardiac failure, which occurred in 99 cases (17%). Seventeen patients (3%) suffered a cerebral thrombosis, usually during the phase of hypotension following acute infarction, and there were only seven cases of pulmonary infarction in this series.

Results.

After a period of observation of up to 10 years, 86 patients (20%) were working at their normal employment, 114 (27%) were restricted in their activity, 88 (21%) were invalids and 236 (45%) were dead. The commonest cause of invalidism was congestive heart failure (Figure IV).

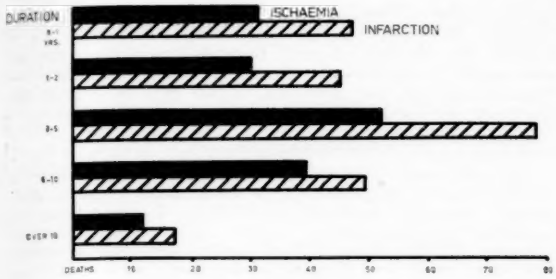

FIGURE V.

Length of survival after onset of coronary artery disease.

Of those who died after myocardial infarction 47 (20%) died within the first year, 45 (19%) died between one and two years afterwards and 78 (33%) lived for three to five years. Forty-nine (21%) survived for six to ten years, and 17 (7%) died more than 10 years after their infarction. Of those who survived more than five years, the majority died of some unrelated cause (Figure V).

Myocardial Ischæmia.

Six hundred and twenty-five patients were considered to be suffering from myocardial ischæmia, and of these 384 (61%) were males.

The cardinal symptom was intermittent retrosternal pain induced by effort, emotion or cold, and often radiating to the arms, neck or throat. In four cases the pain was epigastric, and in two the radiation was to the interscapular area.

The relation to cold was unusual in other conditions associated with anterior chest pain, and the statement that the pain was provoked by the patient's going out into cold air at night, or going into a cold bedroom to undress, was considered to be of diagnostic significance. The latter cause of pain could be prevented by previous warming of the bedroom.

It has often been said that the relief of anterior chest pain by glyceryl trinitrate helps in the diagnosis of myocardial ischæmia, but when it is remembered that the taking of the drug is always accompanied by cessation of effort, the value of the test is much diminished. It was found in this series that a much more reliable test was to ask the patient to take glyceryl trinitrate before performing some task which he knew would induce an attack of pain. If he then found that he could perform the task in comfort, a diagnosis of cardiac pain from myocardial ischæmia could be made with confidence. In patients presenting with anterior chest pain as the main symptoms, this increase in effort tolerance was found in no condition other than coronary artery disease.

Any patient complaining of pain which was confined to the left inframammary area, was stabbing in character or had a duration of less than one minute or more than 10 minutes was considered to be suffering from some condition other than coronary artery disease, and was excluded from this series. No female patient was included in the series without electrocardiographic evidence of coronary artery disease .

Physical examination revealed no significant abnormalities apart from the signs of associated conditions in a number of cases. One hundred and fifty-six patients (25%) were hypertensive, 28 (4%) were obese, 22 (3%) suffered from diabetes mellitus and seven (1%) had anæmia sufficiently severe to be a contributing factor in the development of cardiac pain.

The Electrocardiogram.

In 490 cases (79%) the electrocardiogram showed depression of the *ST* segments, either at rest or after exercise, eighty-seven patients (14%) showed the pattern of old myocardial infarction, with persistent *Q* waves and inverted *T* waves in either anterior or posterior leads. In 48 patients (8%) with a typical history of angina of effort, the electrocardiogram was quite normal. Sixteen of these patients subsequently developed the electrocardiographic pattern of myocardial ischæmia, and their prognosis was appreciably better than that of those who showed ischæmia when first complaining of angina. Forty *per centum* were still working after 10 years and only 14% were dead.

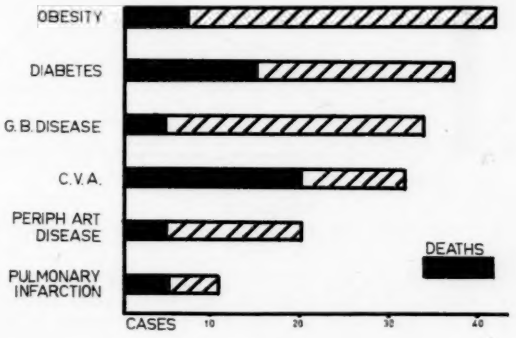

FIGURE VI.

Incidence and mortality, showing adverse effect in diabetes mellitus and cerebral vascular lesions.

A man, aged 46 years, complained on May 15, 1956, of low retrosternal pain radiating to the neck and jaw for six months. The pain was induced by effort and relieved by rest, after one or two minutes, and the amount of exercise required to provoke the pain varied considerably. It was quite unlike the pain of dyspepsia, from which he had also suffered. Examination revealed no abnormality, and his electrocardiogram was normal. A diagnosis of angina of effort was made. On June 19, 1959, he complained of recurrence of retrosternal pain radiating to the neck and jaw. The pain was induced by effort and relieved quickly by rest. On examination, a soft apical systolic murmur could be heard, but there was no other abnormality. His electrocardiogram had changed, with the development of *ST* depression and *T* wave inversion in leads II, III and aVF. This confirmed the previous clinical diagnosis of myocardial ischæmia. Since then his systolic murmur has persisted, but he has remained free from pain as long as he keeps within his limitations. He avoids pain on climbing stairs by taking "Trinitrin" (0·01 grain) before commencing the effort.

Four patients with a normal electrocardiogram and symptoms of myocardial ischæmia subsequently developed myocardial infarction.

A man, aged 41 years, complained on June 16, 1955, of having for the past eight months suffered from tightness in the chest on exertion, with retrosternal pain radiating to the throat. The attacks of pain were of short duration and were quickly relieved by rest. They never occurred apart from exertion. On examination, no abnormality was found, and an electrocardiogram was normal. He was given a supply of "Trinitrin" tablets (0·01 grain), and told to observe the effect of taking a tablet before exerting himself. He reported that by the use of "Trinitrin" in this manner he could perform in comfort many tasks which previously had been impossible because of pain. As a result of this

test a diagnosis of myocardial ischæmia was made. On October 5, 1956, he complained that his cardiac pain had been more easily provoked by lesser degrees of effort during the past three weeks. Examination revealed no cardiovascular abnormality, but his electrocardiogram showed deep *Q* waves and elevated *ST* segments in Leads V2, V3 and V4, with *T* wave inversion in Leads V4 and V5—the signs of acute anterior myocardial infarction. From that time onwards his activity was restricted by pain to quiet walking over a distance of not more than 200 yards. On August 27, 1958, he suffered a severe myocardial infarction, with intense pain, collapse, pallor, sweating, impalpable pulse and no recordable blood pressure. He died within two hours without an electrocardiogram having been taken.

As in the case of myocardial infarction, abnormality of the heart rhythm was frequently found. Ectopic beats

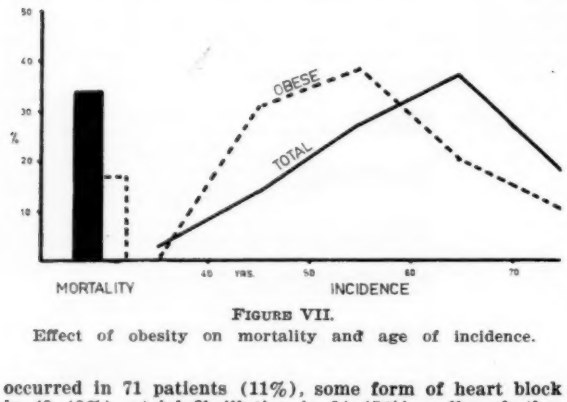

FIGURE VII.
Effect of obesity on mortality and age of incidence.

occurred in 71 patients (11%), some form of heart block in 49 (8%), atrial fibrillation in 34 (5%), gallop rhythm in 20 (3%) and atrial or ventricular tachycardia in six (1%).

As in the case of myocardial infarction the mortality of patients with any form of disturbed cardiac rhythm was greater than that of the series as a whole (Figure III).

In the whole series, 149 (24%) of the patients presenting with symptoms of myocardial ischæmia subsequently suffered myocardial infarction (Figure II).

Management.

Every patient was given a supply of tablets of glyceryl trinitrate (0·01 grain), which he was told to use liberally whenever pain occurred, or to prevent pain when he was about to perform some pain-inducing task. Instructions were given that the tablet was to be crushed between the teeth and the fragments allowed to dissolve. A bursting headache was experienced by some patients, which was often described as being more disagreeable than the angina. This side effect was usually abolished, without loss of therapeutic efficiency, by halving the dose.

A long-acting coronary vasodilator, pentaerythritol tetranitrate ("Mycardol") was used in most cases. It appeared to act mainly as a placebo, but no attempt was made at a controlled assessment of the value of this drug. Many patients also required mild sedation to relieve their accompanying anxiety state.

By far the most important aspect of management of this condition was the instruction of the patient with regard to his mode of living. All the patients were told that they were not to consider themselves invalids, and that they were to live as active a life as possible within the limits set by their pain. They were also told to avoid activity on first going into a cold atmosphere, or to take a prophylactic dose of "Trinitrin" if this was unavoidable. The treatment of associated conditions, such as hypertension (156 cases—25%), obesity (28 cases—4%), and diabetes mellitus (21 cases—3%) often so improved the effort tolerance that pain no longer occurred unless some unusual effort was undertaken.

Long-term anticoagulant therapy was used in five cases with mixed results, similar to those described in the case of myocardial infarction.

Results.

Patients were followed for from two to 10 years. At the end of the follow-up period 138 (22%) were still working, 200 (32%) had their activity restricted by their disease, 104 (17%) were invalids and 183 (29%) were dead (Figure IV). Of the 183 who died, 19% died less than a year after the onset of their illness, 18% died between one and two years later, 32% died after three to five years of angina, 24% lived for six to 10 years and only 7% survived after 10 years (Figure V).

Of those who died after suffering from coronary atherosclerosis for more than five years (31%), increasing numbers died from other unrelated diseases. The early deaths were nearly all from myocardial infarction.

When the number of cases in each age group and sex were plotted against the result a steady deterioration was seen as the age increased. There was no significant difference between the results in the two sexes (Figure I).

Associated Diseases.

The commoner conditions also found in patients with coronary artery disease in this series were hypertension, obesity, diabetes, gall-bladder disease, cerebral vascular accidents and pneumonia. Only diabetes and cerebral vascular accidents had a bad effect upon the mortality rate, and this is presumably because these conditions were commoner in the older age groups (Figure VI).

Hypertension.

Essential hypertension was present in 244 patients, in whom blood pressure readings of 200/100 mm. of mercury, or higher, were obtained. There was a significantly higher incidence of hypertension among the women, of whom 36% were hypertensive, than in the men, in whom the incidence was 17%.

In both sexes there was a slightly higher proportion of hypertensive patients among those suffering from myocardial ischæmia than among those with myocardial infarction. This difference is not significant, in view of the number of patients presenting with acute myocardial infarction whose hypertension never returned after the attack.

Obesity.

Some surprise was caused by the finding that the mortality rate in obese patients suffering from coronary artery disease was only 17%, or roughly half that of the series as a whole. This finding is contrary to everything that is taught, but it is explained when the age of incidence of coronary disease in obese patients is plotted against that of the whole series. It will be seen that the obese patients fall into the younger age groups, in which the mortality is significantly less (Figure VII).

Conclusion.

This paper is not intended to be a complete description of coronary artery disease, but is a report on the condition as it is seen in the practice of one physician. The findings in this series are similar to those described by Wood (1952), except for the comparatively high proportion of women. The proportion of men to women is usually given as 4:1, and the other figure of 2:1 seen in this whole series has only been described when the age of incidence is over 60 years (Gordon *et alii*, 1939). The high female incidence in this series is partly due to the fact that general practitioners are reluctant to diagnose coronary disease in women, and refer to the consultant a higher proportion of their female patients than of their male patients.

Among the points of interest that arise from this series are the association of myocardial infarction with diabetes and its importance as a factor in diabetic instability, and also the occurrence of myocardial infarction in patients allowed to be hypotensive after surgical procedures.

The bad prognostic significance of all types of disturbed cardiac rhythm, even the so-called benign ectopic beats, is clearly demonstrated. The fact that angina pectoris can be provoked by cardiac response to stimulation by cold, and the increased effort tolerance after the administration of "Trinitrin", are of significance in the diagnosis of coronary artery disease.

The writer was continually impressed by the way the personality of the patient influenced the prognosis in coronary artery disease. Some patients recover and return to work despite all indications to the contrary, and others with apparently minor attacks assume that their disease is progressive and fatal, remain invalids and await the inevitable end. An attempt was always made to convince patients that acute myocardial infarction is an illness from which recovery is the rule.

The most difficult problems in management have been in myocardial ischæmia. The patient who will not live within his limitations finds his pain being more and more easily provoked, and ultimately suffers infarction. At the other end of the scale is the man to whom angina means impending death, and who rapidly develops an anxiety state with symptoms far more disabling, and far more difficult to treat, than those of the underlying myocardial ischæmia.

No new information on the disease has emerged from this study, and the consistency which the disease pattern presents reflects the constancy of the pattern of life in Anglo-Saxon communities throughout the world.

Summary.

A series of 1000 consecutive cases of coronary artery disease is described, and the patients have been followed for periods of up to 10 years.

The cases have been divided into two main groups—those of myocardial infarction and those of myocardial ischæmia—the distinction being made on the clinical picture, the electrocardiographic findings and the result of ancillary tests, such as serum transaminase level estimations.

Some unusual methods of presentation of acute myocardial infarction are discussed.

The effect of associated diseases is also discussed, with particular reference to obesity and diabetes mellitus.

Acknowledgements.

Without the help of my colleagues in Geelong many of the figures for this study could not have been collected.

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HEART DISEASE IN AUSTRALIA.[1]

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WITH the widespread current interest in heart disease, it is useful to study the relevant statistics and their general trend. The glaring headlines in the newspapers — "The Biggest Killer", "Silent Killer of Millions" and so on — are likely to arouse concern and even alarm. Knowing the facts may help to allay anxiety.

Information is available in generous supply, but some time and effort are necessary if the inquirer is to get satisfying help. The Annual Epidemiological Reports issued by the World Health Organization, and The Commonwealth of Australia Year Books have provided most of the data used in this commentary and in my previous papers (Southwood, 1937, 1957, 1959). I am especially grateful to the Deputy Commonwealth Statistician, Mr. D. L. J. Aitchison, and to Mr. F. E. Ash of his Adelaide office for expert assistance. Dr. H. R. Marston, F.R.S., also gave generous help in preparing the figures.

[1] Based on a paper presented at a meeting of the Medical Sciences Club of South Australia on June 9, 1961, at Adelaide.

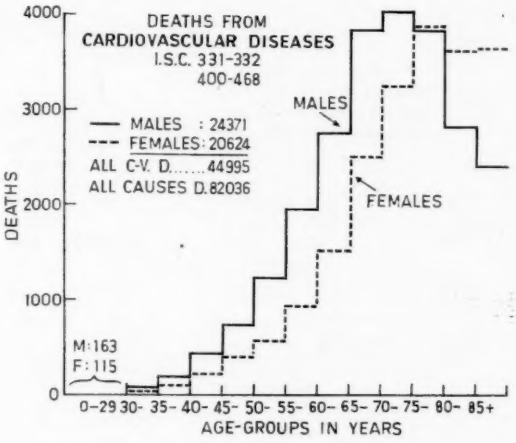

FIGURE I.

Deaths from cardio-vascular diseases in Australia in 1955. The incidence of deaths is higher for males, and for both sexes it is especially high in the age groups over 60 years. This is characteristic of the statistics for recent years in England and Wales, United States of America, Canada, New Zealand and many other countries.

How Big is the Problem?

Statistics on the amount of illness and death due to heart disease in its several forms provide a wealth of data,

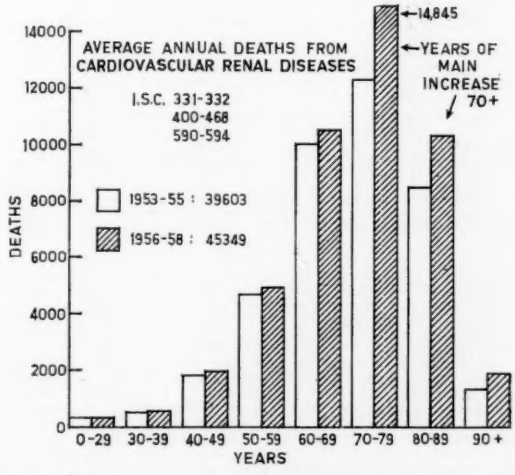

FIGURE II.

Average annual deaths in Australia from cardio-vascular-renal deaths. The incidence of cardio-vascular-renal deaths in mortality statistics has continued to climb. The death rates have the same trend as shown here for numbers of deaths.

but they need cautious inquiry and assessment—there is some point in the unkind jokes about mishandled statistics. Morbidity statistics are especially useful, but they are not available for any large communities anywhere in the world, as far as I know. Figures can be produced by

many of the large hospitals, and such can be extremely valuable; yet even those have their limiting factors—multiple observers and changing medical thought, for instance. Mortality data, as given in the publications mentioned, are readily accessible, and they cover most of the countries of the world. But, again, we must tread carefully. Even the statistics for countries one may know well must not be pushed too far; there are limits to the drawing of deductions from them. When it comes to comparing statistics of several countries, and especially if the countries differ greatly in culture (including medical education) and in standards of living, the process may be hazardous. The inquirers may easily be led on garden-path journeys, wasting time and getting wrong ideas.

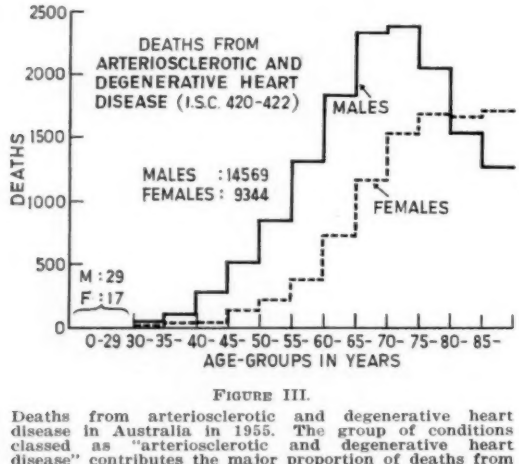

FIGURE III.

Deaths from arteriosclerotic and degenerative heart disease in Australia in 1955. The group of conditions classed as "arteriosclerotic and degenerative heart disease" contributes the major proportion of deaths from cardio-vascular diseases. The incidence is higher for males than females in all age groups below 80 years.

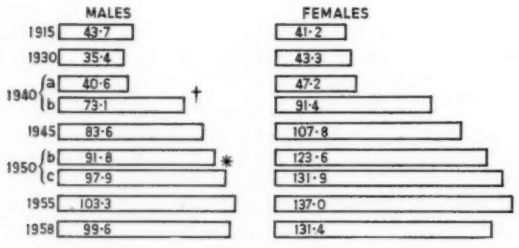

FIGURE IV.

Deaths from vascular lesions affecting the central nervous system in selected years in Australia. Vascular lesions affecting the central nervous system cause about one-quarter of all deaths from cardio-vascular diseases. Figures for each of the years 1940 and 1950 are handled in two ways, as explained in the text. The rates are calculated per hundred thousand mean population. The cross designates a result presumably of the alterations in the "joint clauses" classification. The asterisk designates a result of the change from "joint causes" to "underlying causes" classification.

In 1958 there were in Australia 83,723 deaths or 850·11 per hundred thousand population. Of the deaths, 28,704 were certified as being due to heart disease (B24-29 or items 400-447 on the International Classification List), 11,360 to cerebral vascular lesions (B22 or items 330-334 on the International List) and 3515 to diseases of the arteries and veins (A85 and A86 or items 450-468 on the International List). Those three major sections are grouped as the cardio-vascular diseases, and in the year 1958 they accounted for 43,579 deaths or just over 52% of the deaths from all causes. Figure I shows the incidence of the combined group for each sex in five-year age-groups for 1955, a fair sample of present circumstances. It is noted that over 80% of the cardio-vascular deaths were of persons over 60 years of age. The all-ages incidence in males is about 20% above that of females; for deaths of persons under 60 years of age the incidence in males is about twice that in females, but the difference vanishes above that age.

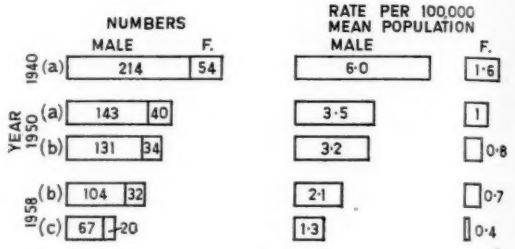

FIGURE V.

Deaths from cardio-vascular syphilis (including syphilitic aneurysm of the aorta) in Australia. Syphilis is being recorded less frequently as a cause of death from cardio-vascular disease now than formerly. Another instance is provided, showing the variations produced by statistical handling. (*a*) Refers to the fifth I.S.C. Revision (1938)—aneurysm of the aorta only. (*b*) Refers to the sixth I.S.C. Revision (1948)—aneurysm of abdominal aorta to item 022. (*c*) Refers to the seventh Revision (1955)—aneurysm of the abdominal aorta to item 451.

Figure II illustrates the numerical increase in recent years, and the changing age incidence; the older ages are contributing still more; the rates per hundred thousand are similarly affected, though to less degree, owing to the increase in population. Heart disease, assessed from recorded deaths, affects mainly old people. In those over 60 years it appears to be increasing.

Arteriosclerosis.

Of the several forms of heart disease figuring on death certificates, "arteriosclerotic or degenerative heart disease" appears as often as all the other forms combined (Figure III). Again, the deaths fall heaviest in the over-60 groups—just over 80%. The proportion of males to females, for all ages combined, is 1·5:1; for ages 40-60 years the male-female ratio is 3·7:1.

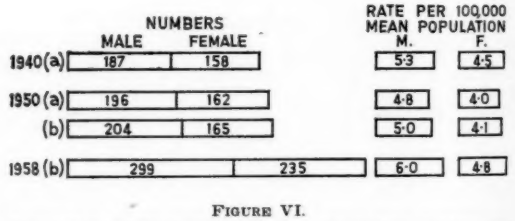

FIGURE VI.

Congenital malformations of the circulatory system in Australia. The rates for the selected years show no gross variations. (*a*) Refers to the fifth I.S.C. Revision (1938)—congenital malformation of the heart only. (*b*) Refers to the sixth Revision (1948).

Coronary heart disease is included in this group, and the statistics relating to it are discussed below. It was the work of J. B. Herrick (1912) that drew the attention of doctors throughout the world to the dramatic effect of sudden obstruction of a coronary vessel; Leyden had described the clinical features in 1884, but little interest was aroused then. It was not until 1929 that coronary heart disease was mentioned on the International Statistical List; prior to that, presumably, it was classed under "angina pectoris".

Cerebral Vascular Lesions.

Vascular lesions affecting the central nervous system have in recent years accounted for nearly 14% of all deaths in Australia (Table I). There has been a fairly steady

TABLE I.

Death Rates per 100,000 Australian Population, from Certain Causes in Selected Years.[1]

Cause of Death.	1907.	1956.	1957.	1958.
All causes	1098·6	913·2	881·2	850·1
Heart disease ..	102·7	313·1	292·0	291·5
Cerebral vascular lesions	46·1	122·6	119·0	115·3
Diseases of arteries ..	—[2]	38·6	36·8	35·7
Cancer	71·3	130·3	126·4	118·0
Tuberculosis	93·5	7·7	6·1	5·5
Diphtheria	9·8	0·13	0·09	0·01[3]

[1] Figures supplied by Commonwealth Bureau of Census and Statistics, Adelaide.

[2] Includes "hypertension without mention of heart", not recorded separately in 1907.

[3] One death only.

increase in the death rate from this cause over the past 50 years, though it appears to have been of less degree than the increase in arteriosclerotic heart disease. Figure IV shows the changes in selected years. Generally the deaths have struck the female population more heavily; in recent years, the female death rate from this cause has been more than 30% over that for males.

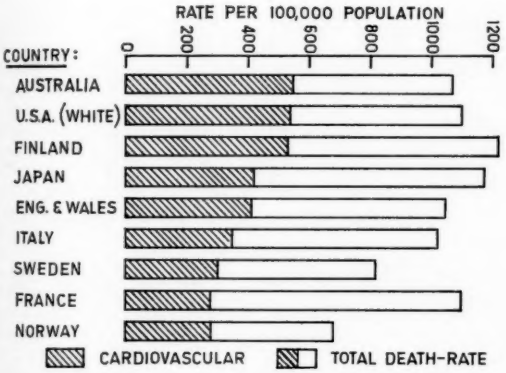

FIGURE VII.

Death rates in selected countries for cardio-vascular causes and total death rates in 1955 for ages between 45 and 64 years. Statistics for various countries bear the stress of differing educational and living standards, and concepts in medical practice. Satisfactory comparisons are often impracticable, and deductions hastily made may be misleading.

One of the difficulties met with in the study of mortality statistics is exemplified in Figure IV. The present practice is for the International Classification List to be revised about every 10 years; the List in current use is the Seventh or 1955 Revision. In the Fifth (1938) and earlier Revisions the basis was a "joint causes" classification; when the certifying doctor indicated two or more causes on the certificate, the statistician placed the death in accordance with an "order of precedence" official table provided by the international authority for his guidance. In the present classification and practice, selection of the underlying cause of death is the basis of primary death tabulation. The booklet on the subject issued by the Commonwealth Government "for the guidance of medical practitioners in filling up the medical certificates of cause of death" should assist in ensuring tabulation of deaths in accordance with the doctor's opinion in each case — but the statistician can play his part satisfactorily only if the doctor is punctilious in his certification.

Figure IV gives death rates in selected years, and serves to draw attention to two important changes in statistical practice which affected the rates for cerebral vascular lesions appreciably. In 1940 the modified method of statistical handling then introduced made a profound change. It is shown that, with the same set of certificates, the new method nearly doubled the rates in the tabulation. Again in 1950, when the "underlying causes" classification was applied, an increase was shown, this time about 10%. It is wise to tread warily with statistics.

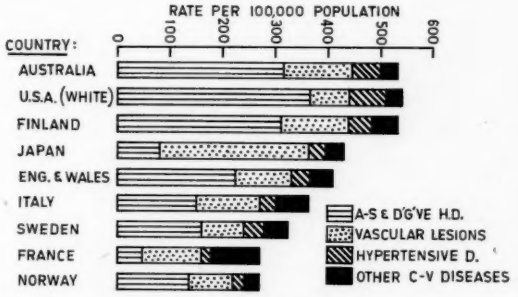

FIGURE VIII.

Death rates in selected countries for different types of cardio-vascular disease, in 1955, for ages between 45 and 64 years. In the subdivision into the several types of disease, the variation in certification and/or statistical treatment is evident. "Vascular lesions" refers to those lesions affecting the central nervous system.

Rheumatic Fever, Syphilis and Congenital Lesions.

Rheumatic fever has been declining as a death cause lately, in Australia (Lancaster, 1957) and many other countries. Yet the future is uncertain. The streptococcus, so troublesome in the past, may again assume augmented virulence, and invest rheumatic fever and scarlet fever

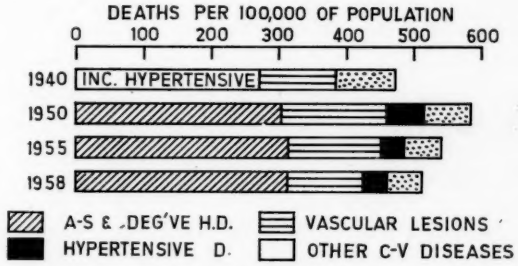

FIGURE IX.

Death rates for different types of cardio-vascular disease for age group 45-64 years. Over the past 20 years at least, a declining trend has been occurring for some types of disease in the selected age group. Note that a change in the classification (from "joint causes" to "underlying causes") has affected the figures from 1950 onwards. "Vascular lesions" refers to the central nervous system.

with their pristine horror. I have heard from a London colleague that during the past few months he is witnessing a recrudescence of juvenile rheumatic carditis. Over the past 10 years the average annual deaths from rheumatic fever and rheumatic heart disease have accounted for less than 3% of all deaths from cardio-vascular disease in Australia; in England and Wales the figure has been about 5%. In both countries arteriosclerotic heart disease (including coronary disease) and myocardial degeneration have accounted for 70%.

Syphilis has also become less important as a cause of cardio-vascular deaths (Figure V). After one has allowed for changes in statistical handling, as shown in the figure, the present rate (about 1 death per hundred thousand population) is one-fifth the rate of 20 years ago.

Congenital lesions account for few cardio-vascular deaths (Figure VI). Altered statistical practice and more precise diagnosis may explain the minor change in rate in the past 20 years.

The Hazard in Middle Age.

The experience of most clinicians supports the idea that there is a continuing increase in deaths from cardio-vascular disease in people of middle age, between 45 and 64 years. For the populations in that age group, Figure VII indicates in the complete block for each of the

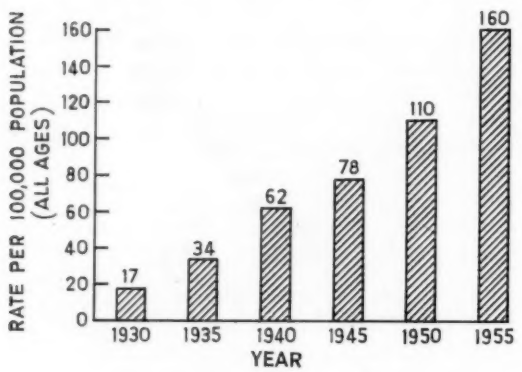

FIGURE X.

Death rates in selected years in Australia for diseases of the coronary arteries and angina pectoris. Certification of coronary heart disease as a cause of death has continued to increase significantly since 1930.

countries studied the death rate from all causes in 1955. The shaded portions show the cardio-vascular deaths, which have high rates in Australia, the United States of America and Finland. The proportion in France is notably low, for reasons not readily apparent.

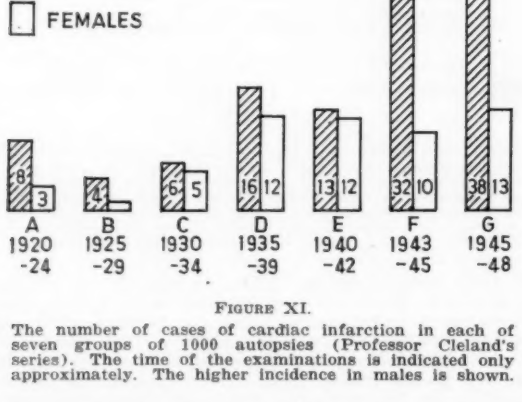

FIGURE XI.

The number of cases of cardiac infarction in each of seven groups of 1000 autopsies (Professor Cleland's series). The time of the examinations is indicated only approximately. The higher incidence in males is shown.

Some curious differences are evident when the same set of statistics is broken down to the constituent types of cardio-vascular disease (Figure VIII), and they bear witness to the difficulties met with in trying to compare the circumstances in different countries. Many questions arise. For instance, do the French and Japanese statisticians (or the doctors) group ischæmic heart disease with the cerebral vascular lesions? The low general and cardio-vascular death rates in Norway are noteworthy; however, the pattern of types is similar to that in Australia.

Judging from the data illustrated in Figure IX there has not been a significant change in the death rate from cardio-vascular disease in the 45 to 60 years age group in Australia since 1940, and a slight decline has occurred since 1950.

Increase in Coronary Heart Disease.

The statistics support the current idea that there has been a great and continuing increase in coronary heart disease in Australia, as in many countries, over the past 30 years or so (Figure X). It has been suggested that the figures may, from various causes, exaggerate the true situation (Lew, 1957). It certainly seems a growing practice to attribute almost every case of sudden death to coronary heart disease — unless some other cause provides a likely label.

In the preparation of Figures XI and XII, Emeritus Professor J. B. Cleland has kindly permitted me to use data from his extensive series of post-mortem studies. He has analysed the information derived from 7000 cases,

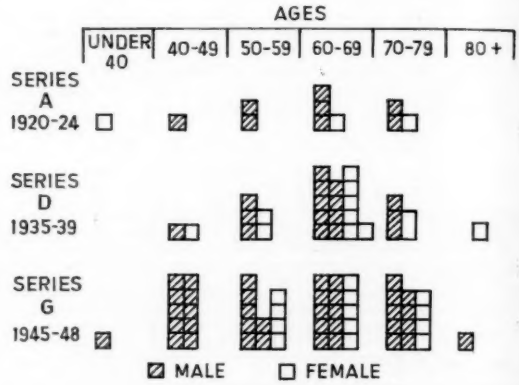

FIGURE XII.

Incidence of cardiac infarction in sexes and in age groups in Professor Cleland's series. The age grouping of Professor Cleland's cases shows a similar trend to that provided by the general mortality statistics, as in Figures II and X. Each square represents one case.

investigated from 1920 to 1948, in groups of 1000. The relevant information from them is set out in chronological sequence. The increase in the number of cases of cardiac infarction, especially in males, is striking. The histogram shows actual numbers and not rates; in each of the seven groups the ratio of males to females examined was 2:1, and allowance must be made accordingly. In Figure XII, which shows the age grouping of Professor Cleland's cases, those selected are his early, middle and fairly recent groups. Although the majority of individuals were aged 60 years and over, the numbers in the younger age groups are significant. Such work, conducted by the one observer — and a most meticulous one — has outstanding value.

Continued Research.

This present study is an attempt to assess the magnitude and nature of the heart disease problem in Australia. It appears similar in both respects to circumstances in Britain, the United States, Canada and probably most other countries; but it is emphasized that international comparisons are difficult.

What is to be done about it? It is evident that the outstanding task is to combat atherosclerosis. There can be no doubt about that. Yet, apart from knowledge of its morbid anatomy and some acquaintance with the biochemical features, we are much in the dark. Its cause? Many suspected factors have been blamed, and it appears

that many are involved (Southwood, 1959). Perhaps aging plays the strongest part, for — although the incipient stages may be developing in early life — it is in old people that atherosclerosis is most commonly to be found.

To assess the influence of aging on the incidence of heart disease, it is useful to examine it in relation to other troubles to which the elderly are prone. Fracture of the neck of the femur seems a suitable one. The figures set out in Table II are based on reports of the Royal Adelaide Hospital, for which I am indebted to the medical superintendent, Dr. Bernard Nicholson. Heart disease admissions have increased at a rate about *pari passu* with that for fracture of the femoral neck. Some other conditions to which the elderly have no special susceptibility — for example, appendicitis and fracture of the humerus — show no such increase. These observations are only a rough index, but they are suggestive.

TABLE II.

Admission Rate, per 10,000 Ward Admissions from all Causes, to the Royal Adelaide Hospital of Cases of Certain Conditions in Selected Years.[1]

Condition.	1938.[2]	1948.	1956–1957.
Heart disease, all forms ..	106	264	282
Fracture of neck of femur ..	31	48	66
Fracture of humerus ..	26	28	25
Appendicitis	387	382	248

[1] From annual reports, Royal Adelaide Hospital.

[2] Numbers of patients admitted in the selected years were 11,755, 15,048 and 19,654 respectively.

Is atherosclerosis affecting more people? The work of Professor Cleland and other pathologists suggests that the changes in the arterial walls may not be getting commoner, but that complications of the disorder, especially coronary thrombosis, have been increasing.

If we live long enough, the greatest threats to our continued existence are atherosclerosis and cancer. Both conditions are the subjects of vigorous research in wards and laboratories throughout the world. The tasks are not easy, nor are they likely to be accomplished soon.

The sudden *exitus* of many middle-aged men from coronary artery disease is a distressing fact; it is the main warrant and stimulus for community concern and action in seeking preventive measures. The effects of atherosclerosis in old people we accept almost complacently. But should we? Even though most deaths from cardio-vascular diseases come now to old people, "Death, whene'er he call, must call too soon".

Howard Florey points out "the enormous change in point of view which has taken place in the last 30 or so years. Formerly atherosclerosis was thought to be a manifestation of old age about which nothing could be done. No doubt changes . . . inevitable with advancing years, do play a part, but the increased incidence of coronary heart disease in young people has greatly stimulated the examination of all aspects of the disease. We are still in a state of much confusion . . ." (Florey, 1960).

Much remains for discovery — the prime need is for continued research. There are many fields to work in. Epidemiology applied to atherosclerosis is a fairly new business, and important questions await answer. The experimental approach, mainly with the use of animals in laboratories, is likely to give help. Florey suggests that the pig may be a suitable animal for experiment, because (as in man) naturally occurring aortic plaques increase in frequency with the animal's aging. Care has to be taken in applying the results of animal experiments to problems affecting human subjects — extrapolation is sometimes unjustifiable. Much remains to be done in metabolic studies, in carnivores and in men. What may be termed the ecology of coronary artery disease provides an ample field for continuing study.

William Pickles of Aysgarth (1939) has shown how the doctor in the country—observing a fixed population over many years—can solve some of the problems in infectious disease, and the same type of study can well be applied to cardio-vascular disease. Long-term observation of small groups of people in a stable community may supply many missing bricks in the structure of knowledge we are trying to build. The inquiries promoted by the Colleges of General Practitioners in Britain and in Australia have great possibilities. Sometimes the physician may usefully study himself, for in atherosclerosis he is a high-risk subject.

In some countries voluntary organizations are doing a great deal. The American Heart Association is one of the largest. For years it has served as a fund-raising body for conducting publicity campaigns, promoting health education and supporting medical research. The newly-formed National Heart Foundation of Australia has similar aims, and is capable of much useful work. In the kind of activities in which they engage, the voluntary groups can often achieve more than official government departments.

There has been a spate of talk on diets (often freak diets) designed to lower the blood cholesterol level. But, as Florey (1960) insists, it is by no means certain that lowering the level of serum lipid by the administration of poly-unsaturated fatty acids — or indeed by any means at all — has any effect on the development of atherosclerosis or on the incidence of thrombosis. There is so far little hope of aid from special medicaments or "wonder drugs". In the present state of knowledge—or lack of it — it can be said that the only helpful plan for the individual is to follow a steady, orderly way of living, with moderation in eating and drinking, and to avoid (as far as practicable) the conditions thought likely to cause atherosclerosis. "Live calmly and don't get fat" is sound advice.

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A CLINICAL TRIAL OF A HYPOTENSIVE AGENT.

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A HYPOTENSIVE AGENT stated to have positive hypotensive properties without side effects ("Decaserpyl" — Roussel Pharmaceuticals Pty. Ltd.) was used in this trial. It was originally planned to use a true biometrical "random sample" of hypertensives taken from a large industrial medical survey of blood pressure in Australian men and women. This particular survey was unavoidably delayed, and the only alternative was to select patients for the clinical trial from those who presented themselves for examination by reference from some third party and who showed an elevated blood pressure as estimated by the height-weight-age formula adopted as the result of an earlier survey (Whyte *et alii*, 1958).

While the general principles of a null hypothesis were used, each second patient presenting with hypertension was selected for this clinical trial, and each alternate patient presenting with hypertension was left under treatment with whatever hypotensive agent his (or her) own

doctor was prescribing. Care was taken to see that the hypotensive agent used in this trial was not also prescribed in the alternate cases.

Preliminary Clinical Impression.

Before commencing this trial I thought that a preliminary clinical impression would be of assistance in indicating the possible value of proceeding with this survey. Fourteen patients with hypertension, who had not responded to other hypotensive agents, were investigated in forming this clinical impression. All these patients had previously undergone extensive investigations and had been placed in various categories. Blood pressure was recorded once each week with the patient at rest (that is, at rest according to the postulates adopted by the American Heart Association). Normal blood pressure for each of these patients was estimated by the height-weight-age formula referred to above. Four patients ceased attending before a sufficient number of readings could be made to allow a clinical impression to be formed. Of the remaining 10 patients, blood pressure readings at the commencement of treatment with "Decaserpyl" varied between 285/160 to 200/120 mm. of mercury.

Four patients required 10 tablets (50 mg.) per day to show response. Of the remainder, three showed no fall in blood pressure with 12 tablets (60 mg.) per day. The other three patients showed response while receiving six tablets (30 mg.) per day. Of the seven patients who have shown a fall in blood pressure while under treatment with "Decaserpyl", all showed an average fall of 20/30 mm. of mercury within the first three weeks. All seven patients who have shown response have also shown symptomatic relief.

The average fall in blood pressure since the exhibition of "Decaserpyl" in the seven patients showing response has been 50% of the original number of millimetres of mercury of both systolic and diastolic pressures above the estimated normal for each patient. Two patients each receiving 12 tablets of "Decaserpyl" per day complained of transient drowsiness during the first four weeks.

Clinical Trial.

In the actual clinical trial, 30 patients were treated with "Decaserpyl", and 30 "controls" were observed who were under treatment with some other hypotensive agent.

The average period of observation in each case was three months, and patients were examined at intervals of one week. The total trial extended over a period of eight months.

The 30 patients under treatment with "Decaserpyl" in this clinical trial and the 30 alternate patients under treatment with various other hypotensive drugs had systolic blood pressures at the commencement varying between 190 and 170 mm. of mercury, diastolic blood pressures varying between 128 and 115 mm. of mercury. There was no biometrical significance between the readings of the two groups.

Results.

On completion of the trial the following results appeared.

Treatment with "Decaserpyl".

Treatment with "Decaserpyl" produced the following results. The average fall in systolic blood pressure was 40 mm. of mercury, and in no case was the systolic fall less than 25 mm. of mercury. The average fall in diastolic blood pressure was 25 mm. of mercury, and in no case was the diastolic fall less than 20 mm. of mercury. No side reactions were reported after careful history taking.

Treatment of Alternate Subjects with Various Other Hypotensive Agents.

Treatment with other drugs produced the following results. The average fall in systolic blood pressure was 25 mm. of mercury and in no case was the fall less than 10 mm. of mercury. The average fall in diastolic blood pressure was 10 mm. of mercury and in no case was the diastolic fall less than 5 mm. of mercury. Side reactions, varying from severe drowsiness to sudden severe syncope, were reported in 15 cases.

Conclusion.

The hypotensive agent under clinical trial ("Decaserpyl") appears to warrant the description of a hypotensive agent with positive hypotensive properties and without side effects, in contradistinction to the various other hypotensives exhibited in this trial.

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Reports of Cases.

REPORT OF AN OUTBREAK OF "HAND-FOOT-AND-MOUTH DISEASE" IN SYDNEY.

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Clinical Records.

ON November 7, 1960, a female child, aged three years, was examined because the mother had noticed that the child had blisters on her feet and was reluctant to walk, owing to their apparent tenderness. No other history was given except that she had been a little irritable and feverish for several days and had not been eating as well as usual. On examination the patient did not appear to be sick. On the border and inferior surface of her tongue near the tip was a large vesicle measuring about 0·7 by 1·0 cm. and greyish in colour. On the palms of her hands and the soles of her feet were a number of small, greyish-yellow vesicles, generally oval in shape and measuring about 2 by 3 mm., surrounded by a clear-cut ring of erythema less than 1 mm. wide. She had a similar vesicle on the dorsum of one hand, but no other rash. There was no lymphadenopathy, nor were there signs relating to other systems. The diagnosis was not clear, so no treatment was given.

On November 11, 1960, another girl, aged three years, presented with a blister on the tip of her tongue; this had been noted by her mother three days before. She had been well and happy. On the day she was examined she had developed a rash on her palms and soles and on her arms and legs. Examination revealed signs similar to those found in the first case seen, with the added features of a diffuse, fine erythematous rash on the extensor surfaces of her arms and legs, with scattered papules over the same area and papules on her palms and soles as well as vesicles.

The subsequent course of the illness in the above cases was uneventful, the erythema fading in two or three days, the lesions on the tongue healing, and those on the hands and feet drying up and desquamating in a week to ten days.

Laboratory Investigation.

Two of the cases were investigated at the bacteriology department of the Royal Alexandra Hospital for Children. No virus was isolated from the samples of fluid from the vesicles or from the nasopharyngeal swabs.

Epidemiology.

Three more primary cases of the disease were seen between November 11, 1960, and January 11, 1961.

Infectivity would seem to be high; contacts in the families of three of the primary cases developed the condition and the incubation period would seem to be short—of the order of three of four days. In all, eight cases in contacts have been reported—all in small children, except one in the father of one of the patients. Not all of these

patients were examined by the author, but the combination of signs is sufficient to identify cases with reasonable accuracy from a description.

All the above reported cases have occurred within a mile of the author's consulting rooms in a middle-class suburban area with a medium population density. The major part of the area is unsewered. Three cases have been described to the author by a colleague who practises in the same area. Two other cases have been described in a suburb of Sydney some 15 or 20 miles from this area. It is possible that the condition has been widespread throughout the whole of the suburban area of Sydney, but has not been taken note of because of its mild nature.

Historical.

After the first two cases the similarity between the condition and an outbreak occurring in Toronto in the summer of 1957, and reported by Robinson and Rhodes (1958), was established. In their paper an outbreak of febrile illness affecting 60 persons was described and "the triad of fever, ulcerative lesions of the fauces and mouth and a bullous eruption arising from a macular exanthem was considered to constitute a new clinical syndrome". In this series Group A Coxsackie virus was isolated from 71% of the patients and the virus showed some serological relationship to Group A Coxsackie virus Type 16.

Alsop, Flewett, and Foster (1960) have since reported a series of 83 cases from Birmingham, from one of which Coxsackie Group A Type 16 was isolated; they descriptively named the condition "Hand-Foot-and-Mouth Disease".

Summary.

A small outbreak of a mild illness characterized by fever, vesiculation of the mouth, hands and feet and an erythematous rash is described, occuring in a suburb of Sydney in the summer of 1960-1961. The clinical similarity between this condition and outbreaks reported in Toronto in 1957 and Birmingham in 1960 and associated with Coxsackie virus Group A Type 16 is discussed.

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HUMAN INFECTION WITH PASTEURELLA MULTOCIDA (PASTEURELLA SEPTICA).

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AND
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VARIOUS types of *Pasteurella multocida* (*P. septica*) have been isolated from infections of animals in Australia (Bain, 1957); these animals included dogs and cats. However, so far as we are aware, no human infections have been reported in this country. The occurrence in Sydney of a case of human infection following the bite of a dog from which the causative organism was also isolated seems, therefore, worth recording.

In other countries human infections fall into two categories — those associated with animal bites, mainly of dogs and cats, and those usually of the respiratory tract not associated with direct inoculation from the bite of an animal. Two series of cases from North America have been reported in recent years by Olsen and Needham (1952) and Byrne, Boyd and Daly (1956). The properties of 59 strains of *P. multocida* from human infections have been described by Talbot and Sneath (1960) and pasteurellosis in general has been reviewed by Carter and Bain (1960).

Clinical Record.

The patient was a man, aged 43 years, who was admitted to hospital on August 23, 1960, suffering from an abscess in the right axilla.

The relevant details of his past history included the information that on July 5 he had been bitten on the ulnar border of his right hand by his dog, who was normally docile, but whom he had tormented. The next day the wound was cleaned by the patient's general practitioner. On July 8, the punctured areas were swollen and painful and for the next two days drained pus, but then healed. On August 7 — that is, one month later — the patient developed painful and swollen glands in the right axilla. Because of this on August 9 he visited his local doctor again and was given penicillin and sulphonamides for two days. The antibiotic therapy was then changed to chloramphenicol, a total of 8 grammes being given in the following five days.

On his admission to hospital, 49 days after being bitten, the patient had a large abscess measuring 4 inches by 3 inches in the right axilla. He was pyrexial with a temperature of 101·2° F.; his pulse rate was 120 per minute and his blood pressure was 130/90 mm. of mercury. There was a trace of albumin in the urine. Examination of the blood showed a hæmoglobin value of 13·3 grammes per 100 ml. The white blood-cell count was 14,700 per cubic millimetre and the differential count showed 2% to be band forms, 76% segmented neutrophils, 10% lymphocytes, 9% monocytes, 2% eosinophils and 1% basophils.

The abscess, which was loculated, was drained on the day of admission, three ounces of pus being obtained, and a drainage tube was inserted. From the pus an organism having the characters of *P. multocida* was isolated in pure culture. It was found to be sensitive to penicillin, streptomycin, tetracycline, chloramphenicol and erythromycin when tested by the disk-plate method.

No antibiotics were administered; the patient's temperature fell to normal within 36 hours of the operation and he was discharged from hospital on August 27, to return for daily dressing of the discharging wound.

On August 30 he developed a painful swelling of the left ankle and on September 1 there was seen to be pitting œdema of the ankle overlying the lateral malleolus and local bone tenderness. Radiological examination of the ankle suggested an early periostitis on the lateral margin of the lower end of the shaft of the left fibula. At this time the abscess was still discharging and *P. multocida*, together with a penicillin-sensitive *Staphylococcus aureus*, was again isolated from the pus.

The patient was readmitted to hospital on September 2 for antibiotic therapy. At this time his temperature was normal, but the blood count showed a hæmoglobin value of 11·3 grammes per 100 ml. with some anisocytosis of the red blood cells and occasional polychromasia. His total white-cell count was 11,600 per cubic millimetre, 74% being neutrophils. No growth was obtained from the blood culture. The patient received 250 mg. of novobiocin every six hours for four days. The discharge ceased, the abscess healed and the condition in the left ankle subsided. He was discharged on September 5 with a further course of tetracycline, 250 mg. being given six-hourly for four days. There has been no recurrence.

Bacteriological Findings.

Strains of *Pasteurella* were isolated from the dog on September 6 from swabbings of sites in the mouth and tonsillar region streaked directly onto tryptose-agar and blood-agar plates. In addition the swabs were incubated

for two hours in tryptose broth, which was then injected subcutaneously into mice and rabbits. (This procedure ensures isolation when the pasteurellas are scanty in relation to other bacteria.) In this case, pasteurellas grew abundantly from all six swabs taken, and all six mice and both rabbits died within 36 hours.

The organism was a small, non-motile, Gram-negative cocco-bacillus with some more elongated forms. It was not encapsulated. It grew readily on tryptose-agar and blood agar-plates, producing rather flat, bluish, translucent colonies 1 to 2 mm. in diameter in 24 hours. As the colonies aged the centres became slightly heaped-up, producing an annular effect. In broth the growth was diffuse with some deposit but no pellicle. Bacteria from either solid or liquid media were autoagglutinable in physiological saline and normal serum. These characterestics are typical of the majority of strains of *P. multocida* isolated from dogs and cats in Australia. The strains obtained from the patient and from his dog were morphologicaly and culturally similar.

The human and canine strains were tested in tryptose-tryptone water containing 1% carbohydrate. Both fermented lactose, glucose, sucrose, mannite, sorbite, galactose, xylose and salicin with the production of acid only; neither fermented trehalose, arabinose, dulcite, inositol or inulin; both gave equivocal reactions in maltose and raffinose. Both produced indole, reduced nitrate, failed to alter litmus milk and were pathogenic for mice by injection. The mice showed a pronounced bacteriæmia with small bacilli, strongly bipolar in Leishman's stain. On morphological and biochemical findings the two cultures could be regarded as identical strains of *P. multocida*.

Serum obtained from the patient on September 1 was examined for the presence of antibodies to the organisms isolated from the lesion and the dog.

The instability of the bacteria in suspension precluded the use of the agglutination test, and the deficiency of extractable type-specific antigen (usual in such strains) also prevented the hæmagglutination test being employed. Hence serological examination was restricted to a quantitative complement-fixation test using the patient's serum and antigens prepared from the human and canine strains. The opacities of the antigens were standardized in a Hilger absorptiometer. The patient's serum fixed 2000 HD_{50} of guinea-pig complement per millilitre with each antigen, indicating a high level of antibody response to the infection and also providing further evidence of the identity of the two strains.

Discussion.

Clinically, infection with *P. multocida* following the bites of animals is characterized by the formation of pus at the site of the bite within two to three days of the attack. Most lesions then heal without any further ill effects, but in some cases osteomyelitis of the adjacent bone has followed within a few weeks. The present case differs from those previously reported in the late appearance of the axillary abscess and in the presumption that there had been some further dissemination of the organisms with the development of an early periostitis of a bone anatomically far away from the site of the original lesion. We have no bacteriological proof that this periostitis was due to the pasteurella infection, but it seems reasonable to suppose that it was. The high level of antibodies in the patient's serum was indicative of generalized infection.

All of the four main serotypes of *P. multocida* and many unclassified strains not belonging to established categories have been isolated from the naso-pharynx of healthy domestic animals. Of the serotypes defined by Carter (1955), two, A and D, have been found in infections of man, but the type most frequently encountered is the "dog and cat" variety, which at present has no defined status. That such a category exists has been noted by Bain (1957), Smith (1958) and Talbot and Sneath (1960). In the present case, the strains isolated fell into this category.

There is abundant proof that the strains isolated from the man and the dog were identical. The fermentation of lactose by both strains supports this conclusion, since this is found in less than 5% of pasteurella strains. Bergey's "Manual of Determinative Bacteriology" (seventh edition) is wrong in stating unequivocally that *P. multocida* does not ferment lactose.

Smith (1955) in England examined the noses and tonsils of 111 dogs for *P. multocida*. Positive cultures were obtained from 10% of the noses and 54% of the tonsils. No comparable survey has been done in Australia, but the organism is found quite commonly in dogs and cats in Sydney. There would be no grounds for taking any action against pets suspected of harbouring pasteurellas.

The action of antibiotics and sulphonamides on *P. multocida* is summarized by Carter and Bain (1960). In animal diseases, sulphadimidine, chlortetracycline and streptomycin are used successfully. Penicillin, although remarkably active *in vitro* is not effective *in vivo*. In man, tetracyclines have been used with success. In the present case, a short course of penicillin followed by chloramphenicol had no effect, but as the antibiotics were administered at the stage when a large axillary abscess had developed this was not surprising. Subsequent therapy with novobiocin and tetracycline resulted in subsidence of the early periostitis and the rapid healing of the draining abscess.

So far as we know this is the first case of disease definitely attributable to this organism reported in Australia. However, in 1947 a strain of *P. multocida* of serotype D was isolated at autopsy in Adelaide from the lung of a woman and sent to one of us; there was no satisfactory evidence that this strain had any pathological significance.

Unless pasteurella infection is suspected, the bacteriological identification of the organism may be difficult. In one case reported by Byrne, Boyd and Daly (1956) the organism was at first thought to be "an atypical Proteus". In the present case, it was only after the history of a dog bite had been obtained from the clinician that the identity of the Gram-negative bacterium isolated from the abscess became apparent. It is possible, therefore, in view of the fact that the organism is quite common in domestic pets in Sydney, that human infections are not as rare as may be supposed. It follows that bacteriological examination should be made of the pus from any suppurating bites of dogs and cats, and the possibility of pasteurella infection borne in mind by the clinician and bacteriologist.

Summary.

The history is given of a case of human infection with *P. multocida* following the bite of a dog.

Identical organisms were isolated from an axillary abscess in the patient and from the mouth and tonsils of the dog responsible for the bite.

Such infections may not be so rare as the literature would indicate, since the causal organisms are frequently found in domestic animals in Sydney.

Acknowledgements.

Our thanks are due to Miss D. Watt, senior technician in the Department of Bacteriology, Fairfax Institute of Pathology, Royal Prince Alfred Hospital, who isolated the human strain. Our thanks are also due to Dr. S. H. Lovell and Dr. J. W. Spence for permission to use the case history.

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A CASE OF LEONTIASIS OSSEA WITH LACHRYMAL OBSTRUCTION.

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LEONTIASIS OSSEA is a rare and chronic disease characterized by diffuse hypertrophy of bones of the cranium and face. One recognized complication is obliteration of the naso-lachrymal duct by hypertrophy of the walls of the bony canal in which it lies. When the naso-lachrymal duct is blocked, whatever the cause, attacks of purulent dacryocystitis may follow.

Clinical Record.

Mrs. A., aged 58 years, had noticed a progressive bulging of her face and forehead for the last 20 years. Her main complaint at her first visit on July 31, 1958, was that in the last six months she had had over a score of attacks of painful inflammation near her right inner canthus.

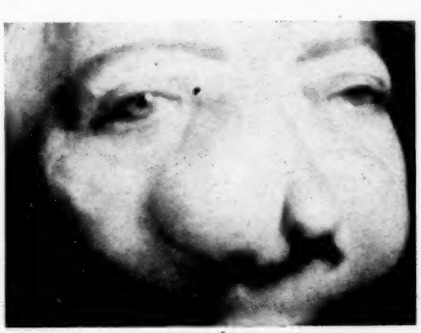

FIGURE I.

Her own doctor in the country had incised an abscess in this region on many of these occasions, and had recognized the condition as a complication of tear-duct obstruction. The patient was sensitive about her appearance, and had previously been unwilling to travel to a centre where the tear sac could be excised. There was gross deformity of the face resulting from enlargement of bones, especially those of the cheeks. The skin over her right lachrymal sac was scarred. An attempt was made to syringe fluid through from the lower punctum to the nose, but the duct was found to be blocked, and fluid returned by the upper punctum.

On August 1, the right lachrymal sac was excised under combined anæsthesia. When the skin incision was made, pus escaped from a small subcutaneous abscess. The medial canthal ligament was cut to gain exposure of the sac, and considerable venous bleeding was encountered while the sac was being separated from adhesions around it. A very large sac was excised. Penicillin and sulphonamide powder was blown into the wound, which was closed by interrupted catgut sutures, and a small rubber drain was left in the upper end.

Healing was uneventful, and the patient has been free of symptoms on this side ever since. In the last year, there have been two attacks of dacryocystitis in the left eye.

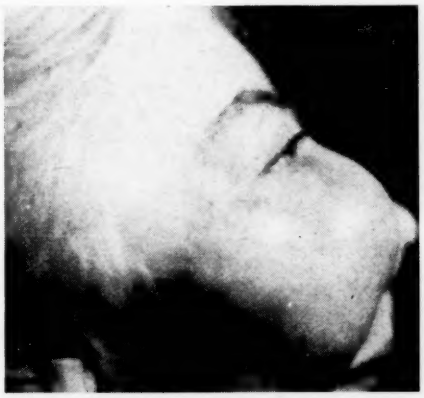

FIGURE II.

When she was examined between attacks, the left naso-lachrymal sac was found to be partially blocked — that is fluid was made to pass into the nose only with difficulty.

Discussion.

When a patient with leontiasis ossea has symptoms of tear-duct obstruction, excision of the sac should be contemplated. More conservative measures, such as dacryocysto-rhinostomy, are not likely to succeed, because of the great thickening of the bone between the orbit and the inferior meatus of the nose.

Acknowledgement.

I wish to thank Dr. O. Powell, Medical Superintendent of the Princess Alexandra Hospital, for permission to publish this case history.

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SOLITARY RETENTION CYST OF THE LIVER CAUSING PRESSURE ON THE RIGHT URETER.

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SOLITARY benign non-parasitic cysts of the liver are uncommon in the experience of most surgeons, and thus they are usually overlooked in the differential diagnosis of tumours in the upper part of the abdomen.

The following case report is that of a retention cyst of the liver large enough to cause symptoms and radiological changes which warranted surgical removal of the cyst.

Clinical Record.

A housewife, aged 43 years, presented in January, 1961, with a history of aching in the right hypochondrium which

was steadily becoming worse over a period of about four years. There were no other significant symptoms or past illnesses. Her family history was good, but it was of interest in retrospect to note that her mother had had a hydatid cyst of the liver removed some few years previously.

The patient had been diagnosed by one local practitioner as suffering from "change of life". However, she visited another practitioner, who discovered a lump in the right hypochondrium, and made a diagnosis of renal swelling.

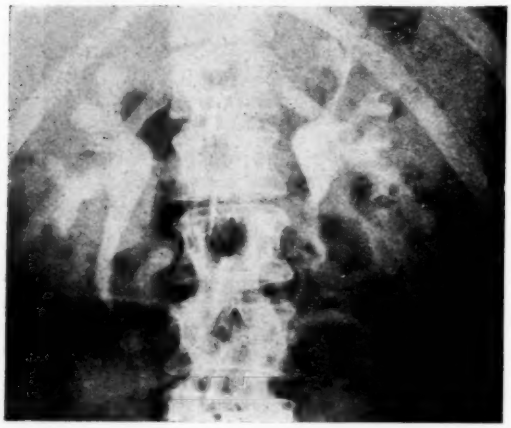

FIGURE I.
Intravenous pyelogram showing deviation of the upper end of the right ureter.

However, as one can see from the intravenous pyelogram (Figure I), the right kidney appears normal, but the upper end of the ureter shows some inward displacement. A barium-enema X-ray examination revealed no abnormality.

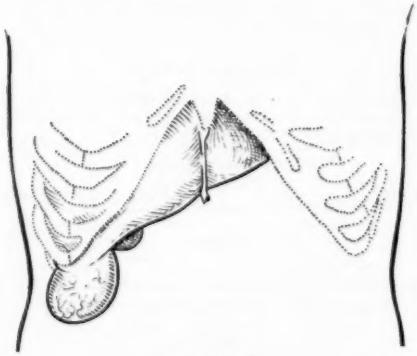

FIGURE II.
An operative drawing of the cyst showing its proximity to the gall bladder.

The case was then referred to me for a further opinion and treatment. Examination revealed a smooth, somewhat rounded swelling in the right hypochondrium. The swelling moved readily on respiration and could be palpated bimanually as it extended towards the right loin (Figure II).

A tentative diagnosis of liver swelling was made, but it was difficult to decide its nature. Hydatid cyst seemed unlikely, but it was considered, largely on the basis of the maternal history.

Laparotomy revealed a thin-walled cyst measuring about 5 in. by 6 in., arising from the lower border of the right lobe of the liver and extending down to the right kidney (Figure III). The cyst contained clear fluid, and was firmly attached to the liver surface. It was decided to perform complete extirpation, which provided no undue problem.

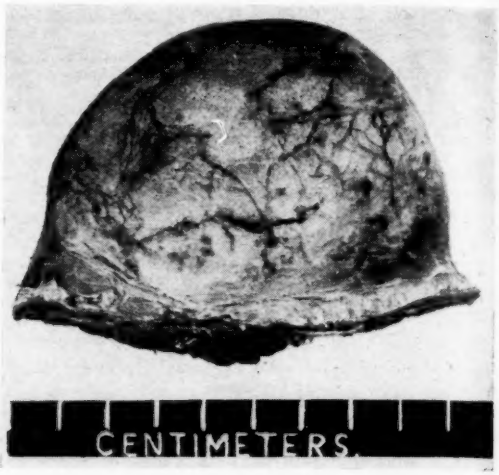

FIGURE III.
A photograph of the cyst showing adherent liver, which required excision as no plane of cleavage could be found.

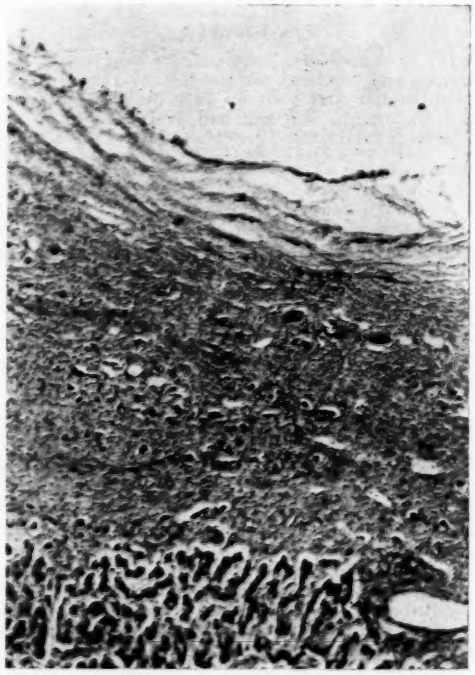

FIGURE IV.
Low-power microscopic appearance of the cyst wall showing fibrous wall firmly adherent to the liver.

The patient made an uneventful recovery and left hospital on the tenth post-operative day.

The pathologist reported that the microscopic appearance was that of a benign retention cyst of the liver firmly

attached to liver substance, with a wall of fibrous tissue lined by a single layer of flattened epithelial cells (Figure IV and Figure V).

Comment.

This case demonstrated the necessity for keeping liver cysts in mind when entertaining the differential diagnosis of upper abdominal swellings of obscure nature, and as a cause of ureteric displacement radiologically.

Perhaps with the progressive increase in the size of the cyst, some renal symptoms would have supervened.

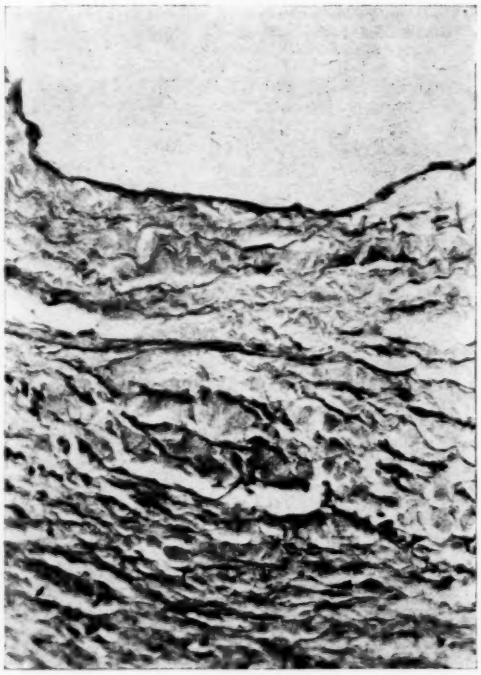

FIGURE V.
High-power microscopic appearance of the cyst wall, showing single layer of flattened epithelial cells lining the cyst.

Sometimes these cysts can reach enormous proportions, in which case some form of marsupialization and repeated instillation of a mild irritant would seem the safer course of treatment. However, if feasible, complete extirpation is recommended, especially if the surgeon is unable to find any evidence of polycystic disease.

It is of interest that our surgical colleagues in Red China occasionally remove such cysts (including very large ones) under local anæsthesia. Also in China, where liver disease generally is relatively common, retention cysts of the type described seem as rare as in the Western world.

As far as one can ascertain, these cysts are due to some obstruction of the biliary canaliculi, but once the pathological process develops, further communication with the bile duct system ceases, so that these cysts never contain bile.

Sometimes a liver abscess may arise secondary to infection of a simple retention cyst, and this could provide a difficult clinical problem.

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AUSTRALIAN CASES OF TINEA NIGRA PALMARIS.

By MARY F. RIDLEY, B.Sc.,
Queensland Institute of Medical Research, Brisbane,
AND
JOHN FRANCIS, M.B., B.S., D.D.M.,
Dermatology Department, Brisbane Hospital, Brisbane.

TINEA NIGRA PALMARIS is a superficial mycotic infection of the skin on the palm of the hand characterized by brown to black macules, resembling silver nitrate stains on the skin. It has been reported from Brazil, Panama, Puerto Rico and Cuba, and from Florida, Texas and Virginia in the United States of America (Conant *et alii*, 1954; Neves and Costa, 1947; Smith *et alii*, 1958; Pardo-Castello and Trespalacios, 1959). This paper records three cases from Queensland.

The first patient, a schoolgirl, aged 16 years, who had never left Queensland, presented on November 26, 1959, with a history that she had noticed a small black stain about 6 mm. in diameter on the palm of her hand some

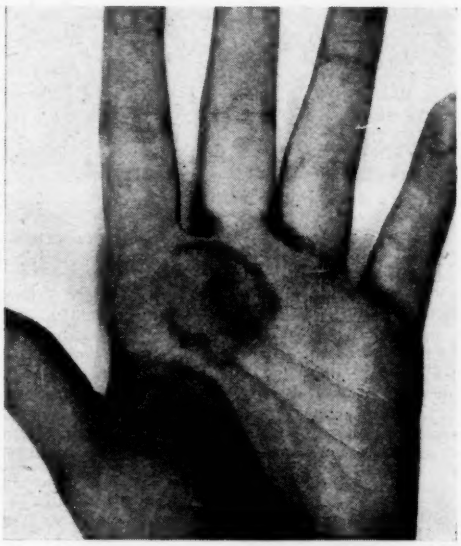

FIGURE I.
Lesion on the palm of first patient.

15 months previously. This spot was symptomless, apart from some slight scaling, and it slowly spread until it was 30 mm. in diameter, when treatment was sought (Figure I). On examination there was a mottled black macule with a slightly greater density of colour at its almost imperceptibly thickened edge. Very slight, fine scaling was present, but no signs of erythema or vesiculation. The mottled black colour was clearly limited to the superficial keratin. A provisional diagnosis of tinea nigra palmaris was made, and the patient was referred to the Queensland Institute of Medical Research for microscopic examination and culture of skin from the lesion.

The second patient, a Brisbane businessman, aged 39 years, was examined in November, 1960, and had a small, mottled lesion about 10 mm. in diameter at the base of the second and third fingers of his left hand. He first noticed it about six months before it was examined.

Mycology.

Scrapings were made from the pigmented areas on the palms of these two patients. Some of the material was

mounted in a potassium hydroxide-glycerol mixture and examined microscopically. Numerous brown hyphal fragments were clearly visible under the low power of the microscope and appeared as large, light brown, and septate when examined under the high power (Figure II).

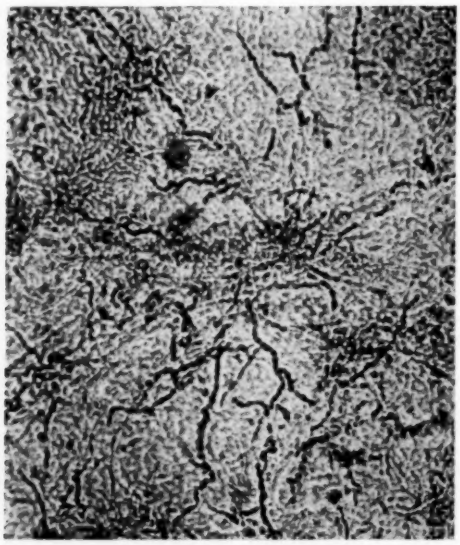

FIGURE II.
Hyphæ in potassium hydroxide preparation of skin (× 120).

The remaining scrapings were inoculated onto Sabouraud's glucose agar with and without chloromycetin and actidione, and incubated at room temperature (about 27° C.). Four days later there were small, dark, shiny, smooth colonies on the Sabouraud's agar without antibiotic. There was no sign of any growth on the agar with antibiotics until 11 days after inoculation, and then the colonies were very small and wrinkled; growth continued to be slow and the colonies were irregular (Figure III).

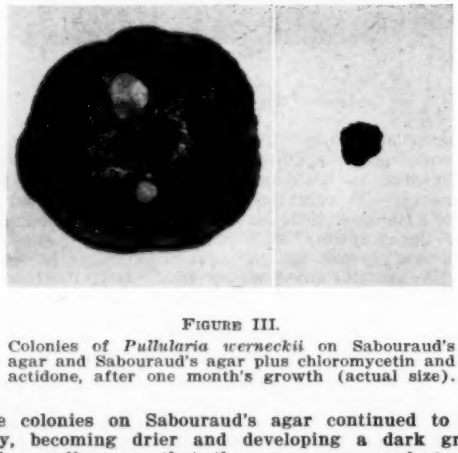

FIGURE III.
Colonies of *Pullularia werneckii* on Sabouraud's agar and Sabouraud's agar plus chloromycetin and actidone, after one month's growth (actual size).

The colonies on Sabouraud's agar continued to grow slowly, becoming drier and developing a dark greyish aerial mycelium, so that they were more velvety than yeast-like.

Microscopically, the yeast-like colonies were composed of oval, budding cells, some of which had a septum (Figure IV). Later, hyphæ with clusters of blastospores along the sides were produced. The greyish aerial mycelium consisted of fine, septate, branching elements, with chains of two to three conidia produced on short conidiophores on the sides of the hyphæ (Figure V).

A few months after the first case was investigated, the Institute received a culture from the palm of a girl, aged 11 years, who lived in Townsville. A diagnosis of tinea nigra had been made after microscopic examination of scrapings from the lesion. The organism, which was growing on Sabouraud's agar, was identical with the fungi isolated from the two Brisbane cases.

This fungus has been placed at various times in three genera—*Dematium*, *Torula* and *Cladosporium*. At present most textbooks refer to it as *Cladosporium werneckii*

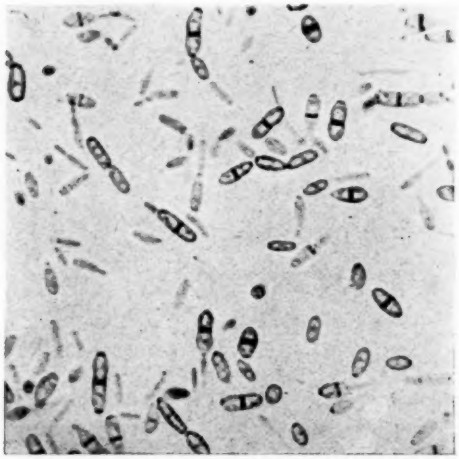

FIGURE IV.
Pullularia werneckii. Cells from a yeast-like colony (× 450).

(Horta, 1921). However, De Vries (1952), in his monograph on the Cladosporia, changed it to *Pullularia werneckii* (Horta).

Source of Infection.

No other member of either Brisbane patient's family had a similar infection. The first patient kept a cat and dog. She never did any gardening, although the second patient did. He could not recall any injury about the time he first noticed the infection. The first patient often handled wood for a fire stove, and had helped stack some rather splintery green pine kindling wood just before the infection was first noticed. As there was some of this timber still left, although quite dry by then, splinters were collected from many of the pieces. There were quite a few dark patches on many of the blocks, and microscopic examination of material from these areas revealed large dark brown hyphæ. Soil samples were collected from the garden.

Some fine shavings of the wood were cultured on Sabouraud's agar with and without chloromycetin and actidione. Other pieces were inoculated into glucose acid broth, incubated for 48 hours at 27° C., and plated on Sabouraud's agar. Any black, yeast-like colonies were studied further. *Pullularia werneckii* was not isolated, although several isolations of a *Pullularia* spore which closely resembled *P. pullulans* were made. No strains of *Pullularia* were isolated from the soil samples.

No material was collected from the homes of the second and third patients.

Treatment.

Treatment of the first patient with Whitfield's ointment was started on December 2, 1959, and the macule faded

rapidly, losing its black colour completely by December 21. Slight erythema had replaced the black macule at this time, but there was no residual evidence of the lesion when the patient was seen again on January 18, 1960. The second patient was also treated with Whitfield's ointment and his lesion disappeared within nine days. The third patient was treated with *Unguentum Acidi Salicylici et Sulphuris* (3%) for five weeks without improvement, and then with *Sulphur Præcipitatum* (5%) in half-strength Whitfield's ointment. The lesion disappeared two months later.

Discussion.

Tinea nigra is a comparatively rare, mostly tropical, disease, caused by a black, yeast-like fungus, *Pullularia werneckii*, which so far has not been isolated from its natural habitat. Pardo-Castelló (1938) reported a case in which a black punctiform patch appeared two weeks after a fall in a garden in which the skin of the patient's hand was slightly bruised. The first lesion reported in this paper appeared "a few weeks after" the patient had helped stack some green splintery timber, and, although the organism was not isolated from some of this timber 15 months later, it is possible that this was the source of infection. There was nothing of significance in the history of the second patient's infection. The culture forwarded from Townsville makes the total known cases in Australia three, and extends the range from Brisbane to Townsville.

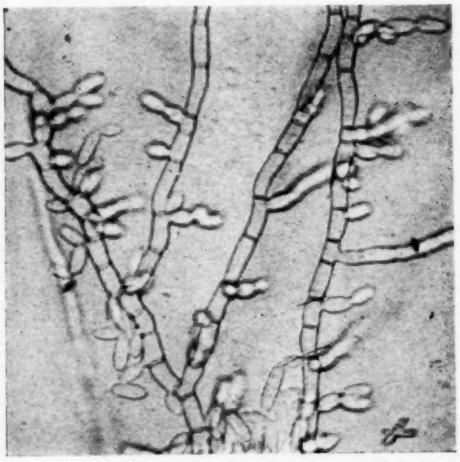

FIGURE V.

Pullularia werneckii. Mycelial phase showing hyphæ and conidia (× 450).

Summary.

Brownish lesions on the hands of a schoolgirl aged 16 years, a businessman aged 39 years, and a girl aged 11 years were diagnosed clinically as tinea nigra palmaris, and confirmed by microscopic examination of skin scrapings and isolation of *Pullularia werneckii* in culture. The organism was not isolated from samples of timber and soil from the schoolgirl's home. Complete cure followed treatment with Whitfield's ointment.

Acknowledgements.

Our thanks are due to Dr. R. A. Rimington and Dr. G. H. Moore, of Townsville, for permission to include details of their case in this paper.

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SMITH, J. G., SAMS, W. M., and ROTH, F., JUN. (1958), "Tinea Nigra Palmaris: A Disorder Easily Confused with Junction Nævus of the Palm" *J. Amer. med. Ass.*, 167: 312.

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Reviews.

Congenital Deformities. By Gavin C. Gordon, M.B., F.R.C.S.E.; 1961. Edinburgh and London: E. & S. Livingstone Ltd. 9¾" × 6¾", pp. 136, with illustrations. Price: 37s. 6d. net (English).

OFTEN the reader is either told directly, or at least given some inkling in the preface, of the *raison d'être* for an article or a book. Despite re-reading the author's preface and giving much thought to this aspect, after reading the text we are still at a complete loss to know why this book was ever written, let alone published.

To begin with, the title is entirely misleading, since it is far from a treatise on "congenital deformities". On the contrary, it deals with only one congenital deformity—dislocation of the hip—and serves as a medium to put forth the author's personal ideas on certain mechanisms associated with its causation, which are sure to find little general support. The all-important question of what influences or brings about the agenesis of the acetabulum rim receives scant attention, it merely being stated that such a condition occurs, and other factors such as muscle pull, intrauterine pressure, etc., are discussed in minute and repetitive detail.

The style of writing used in the earlier portion of the book is stilted and pedantic and makes for very difficult reading. How and why the final two sections on arthritis-osteomyelitis and "the nature of spasticity and mental processes" came to be included in a book entitled congenital deformities must remain a mystery.

The printing and reproduction follow the accepted high standard expected from the publishers, E. & S. Livingstone Ltd.; but surely someone has blundered in accepting Figure 57 for publication with such a well-produced fingerprint superimposed on the top of the subject. Congenital coxa vara, if such this is, is not so rare as to necessitate acceptance of such a print, and there are those who, viewing the poorly developed acetabulum on the affected side, might well wish to adhere to the original diagnosis of the case.

In brief, this book possesses little to commend it to pædiatric and orthopædic surgeons, and falls well below the standard expected in an English monograph from the house of Livingstone.

Recent Advances in Human Nutrition: With Special Reference to Clinical Medicine. By J. F. Brock, D.M. (Oxon.), F.R.C.P. (Lond.); 1961. London: J. & A. Churchill Ltd. 8" × 5¼", pp. 464 with illustrations. Price: 50s. (English).

IN 1959 there appeared a treatise "Human Nutrition and Dietetics" by Davidson, Meiklejohn and Passmore, from the University of Edinburgh. This book is unequalled in its field for clarity of thought and authenticity. Nevertheless the pace of accumulation of nutritional knowledge, both biochemical and clinical, and the vast and increasing world problem of feeding an additional 40 millions of people each year, make it imperative that up-to-date nutritional knowledge should be presented in a readily accessible manner. This is the aim of the present book.

The author of the book is Professor of Medicine at the University of Cape Town. South Africa is proving a fertile field for the study of clinical nutrition, because it is a meeting place of several contrasting cultures. Medical science is sufficiently well established there to provide the adequate resources of a well-staffed university to enable this situation to be exploited. Consequently the author, who has directed many valuable studies involving comparisons of the physiology and pathology of racial groups, is in a position to bring a unique point of view to his book.

The result is a book that will provide stimulating lines of thought for almost every physician. However, it will not

provide answers to every problem that may concern him. He may even think his problems have been multiplied. For example, the vexed question of the rôle of dietary fat in the causation of coronary heart disease remains in abeyance. Also unanswered is the question whether the maximum rate of growth and chemical maturation of infants is necessarily the optimum for health. The existence and nature of a "body protein reserve" remains as obscure as ever. A note of doubt concerning the validity of many nitrogen-balance experiments, resulting from systematic errors in techniques, has been raised. It is obvious that this doubt must be settled before much progress in knowledge of protein nutrition can be expected.

On the other hand, some problems are undoubtedly being rapidly clarified. For example, W. P. U. Jackson, in a contribution dealing with the requirement of calcium for man, comes to the conclusion that although the lower limit of calcium requirement is unknown, it is very much lower than the level of intake usually advised, and that habituation to a low calcium intake may even be of value to the organism.

The chapter on "Protein Values of Human Food", contributed by Platt, Miller and Payne, could make a substantial contribution to the problem of assessing dietary protein requirements, since a way has been found to express in a single figure dietary protein quantity as well as quality.

By the inclusion of a chapter giving the titles and authors of papers read at the Fifth International Congress on Nutrition[1] in September, 1960, it may be fairly stated that the book covers the nutrition literature up to this date. Whilst the book is not likely to be purchased by all physicians, it should be consulted by those wishing to ascertain the extent and limitations of the frontiers of nutritional knowledge.

Man's Presumptuous Brain: An Evolutionary Interpretation of Psychosomatic Disease. By A. T. W. Simeons, M.D.; 1960. London: Longmans, Green & Co. Ltd. 8½" × 5½", pp. 296. Price: 41s. 6d.

THIS provocative but important book propounds a theory that psychosomatic disorders are a by-product of man's evolution. The massive development of his cerebral cortex results in mismanagement of biological and vegetative functions. These functions would proceed more smoothly could they be left to the regulation of the brain-stem. Contributing to this mismanagement by the cerebral cortex are fear, guilt and ignorance. A selected statement of this basically simple thesis is the one given by Simeons on page 92:

> The human stomach can cope perfectly well with all the exigencies of omnivorous feeding and the physiological reactions to fear. But as soon as the heavy-handed, blundering cortex tries to interfere with the management of these delicately poised mechanisms, they are grossly upset.

Therapy consists basically of psychotherapy; evocation of fear, guilt and ignorance is followed in the patient by rational understanding, resulting in improved cortical management of bodily functions.

Simeons views the management of body organs as a tug-of-war between local nervous regulation, diencephalic control and cortical interference. This leads him to a personification and individuation of these three levels which is probably not justifiable. It is reminiscent of Freud's personification of mental processes as id, ego and super-ego. Conflict between these three persons provides the basis for Simeons' understanding of the nature of psychosomatic disorders.

Simeons' dialectic is engaging and often convincing. He is capable of broad grasp and synthesis. As with most gifted theorists, he runs the risk of forcing all his observations together into a unitary hypothesis purporting to explain the whole field. This is where his own presumptuousness is greatest, though it is admittedly a presumptuousness that has not been avoided by some other pioneers in psychosomatic medicine.

The medical reader will wish that the barrage of assertions of physiological and clinical fact were documented by references and bibliography. However, Simeons states that his book is for the lay reader; indeed, to have documented thoroughly a sweeping theory such as this would be the work of a lifetime. The introductory chapters on the significance of evolution for modern medicine are written with clarity and assurance, but similarly are not documented. The standard of publication of the book is very good, and misprints are few in number. One, on page 31, "An intricate newtork of nerve fibres", has an appropriately Orwellian ring.

[1] The collected papers are now published in *Fed. Proc.*, March, 1961, Supplement 7.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"A Physician's Introduction to Electronics: A Laboratory Manual", by A. C. Morris, jr.; 1961. Oxford, London, New York, Paris: Pergamon Press. 8½" × 5½", pp. 44 with illustrations. Price: 15s. net (English).

"Thought Reform: A Psychiatric Study of Brainwashing in China", by R. J. Lifton, M.D.; 1961. London: Victor Gollancz Ltd. 8½" × 5½", pp. 510. Price: 42s. 3d.

"Chemistry of Enzymes in Cancer", by Franz Bergel, D.Phil. Nat., D.Sc., F.R.S.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 122, with figures. Price: 44s. (English).

"The Chemistry of Brain Metabolism in Health and Disease", by J. H. Quastel, Ph.D., D.Sc., F.R.S.C., F.R.S., and D. M. J. Quastel, M.D., C.M.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 170, with figures. Price: 52s. (English).

"Theory of Shoulder Mechanism: Descriptive and Applied", by A. K. Saha, B.Sc., M.B., B.S., F.R.C.S. (Eng.), F.R.C.S. (Edin.), M.Ch.Orth. (L'pool); 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 108, with illustrations. Price: 44s. (English).

"Chemistry of Drug Metabolism", by W. H. Fishman, Ph.D.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 234, with illustrations. Price: 84s. (English).

"The Extraction of Teeth", by G. L. Howe, M.R.C.S. (Eng.), L.R.C.P. (Lond.), F.D.S.R.C.S. (Eng.); 1961. Bristol: John Wright & Sons Ltd. 8½" × 5½", pp. 70, with illustrations. Price: 17s. 6d. (English).

"Molecular Genetics and Human Disease", edited by L. I. Gardner, M.D.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 298, with illustrations. Price: 92s. (English).

"Kabat and Mayer's Experimental Immunochemistry", by E. A. Kabat, Ph.D., and M. M. Mayer, Ph.D.; second edition, 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9½" × 6½", pp. 906, with illustrations. Price: £10 12s. (English).

"Regional Block: A Handbook for Use in the Clinical Practice of Medicine and Surgery", by D. C. Moore, M.D.; third edition, 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9½" × 6½", pp. 394, with many illustrations. Price: £5 (English).

"Control of Ovulation: Proceedings of the Conference held at Endicott House, Dedham, Massachusetts, 1960", edited by Claude A. Villee; 1961. Oxford, New York, London, Paris: Pergamon Press. 9" × 6", pp. 252, with illustrations. Price: 70s. (English).

"An Atlas of Pain Patterns: Sites and Behaviour of Pain in Certain Common Diseases of the Upper Abdomen", by L. A. Smith *et alii*; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 11" × 8½", pp. 54, with illustrations. Price: £5 (English).

"Oakes' Pocket Medical Dictionary", compiled by Nancy Roper, S.R.N., R.S.C.N., S.T.D. (Lond.); ninth edition, 1961. Edinburgh, London: E. & S. Livingstone Ltd. 5½" × 3¾", pp. 492. Price: 8s. 6d. (English).

"Multiple Sclerosis, Prognosis and Treatment: A Nosometric Approach", by Leo Alexander, M.D., A. W. Berkeley, Ph.D., and A. M. Alexander; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 188, with illustrations. Price: 60s. (English).

"Symposium on Anticoagulant Therapy: Report of the Proceedings", edited by Professor Sir G. W. Pickering, M.A., D.Sc., M.D., F.R.C.P. (Lond.); 1961. London: Harvey & Blythe Limited. 8½" × 5½", pp. 284, with illustrations. Price: 21s. (English).

"The Air We Breathe: A Study of Man and His Environment", edited by S. M. Farber, M.D., and R. H. L. Wilson, M.D.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 414, with illustrations. Price: £5 12s. (English).

The Medical Journal of Australia

SATURDAY, SEPTEMBER 2, 1961.

GROWING OLD.

WITH changes in economic and social life the position of many elderly persons in the community is becoming less secure. This seems paradoxical in our welfare-conscious world, but problems of aging undoubtedly exist. Many of these problems, psychological, psycho-pathological, medical, social and economic, together with management and prevention, were discussed at a conference[1] held in Melbourne in 1957, and the findings warrant our attention. A fundamental point in the matter is that the normal process of aging involves some slowing of performance and reduction in adaptability to new situations. Old skills may be maintained, but "you can't teach an old dog new tricks". Unless preparations have been made for satisfying activities after retirement it seems likely that the aging process becomes accelerated, and the loss of old interests together with the breaking of emotional ties through bereavement and other causes provides a foundation for the development of mental illness as well as for physical decline. On the medical side diet came under special scrutiny at the conference. Over-eating was stressed by Dr. G. Larkins as an important factor in hypertension and vascular degeneration. On the other hand, elderly pensioners tend to include too little protein in their meals, mainly because of the expense of meat. It was suggested that investigations should be directed towards the production of cheap and palatable protein foods of vegetable origin. It is interesting to note that Dr. R. F. Butterworth found very few cases of vitamin deficiency amongst the patients in his geriatric unit, and he considered that exaggerated importance had been attached to avitaminosis in the physical and mental disorders of old age. Another point was that muscular wasting—a common feature in geriatric practice—can be prevented by exercise. Here the old-fashioned rocking chair has some merit. Elderly persons in rest-homes and hospitals are often allowed to spend far too much time in their beds and chairs. Once established, a habit of inactivity is difficult to break and is productive of further physical and mental deterioration. At all ages an institutional neurosis can develop through lack of stimulation. Malnutrition may be secondary to anorexia and mental depression, but Dr. Butterworth seldom saw patients suffering from psychotic states in his unit, probably because they were referred direct to a mental hospital.

Speaking as an economist, Professor R. J. Downing of the University of Melbourne discussed anomalies in the pension system which place the single pensioner in a less favourable position compared with married couples. In his view there were no valid reasons for setting the pensionable age for women five years below that for men, a view which is supported by studies undertaken by the Acton Society's Trust[2] in England. He was of the opinion that there should be greater incentive towards saving for annuities within the limits of the means test, and suggested further, that it might be possible to work out superannuation schemes for wage earners similar to those available for salaried workers. About 50% of men in the 65 to 69 years age group are employed, but a reduction in this proportion appears inevitable with increasing mechanization and automation. Surveys indicate that of the unemployed remainder not many wish to resume work, and few, especially of the unskilled, can give satisfactory service at award rates. With the prospect not only of fewer jobs for the over-sixty-fives, but the forcible retirement of men below this age who are still capable of carrying on, the conference discussed pre-retirement courses of instruction and counselling to be instituted by employers and agencies for those who lack the initiative and foresight to spend their leisure in a manner satisfying both to themselves and to society.

What are the best living conditions for the elderly and aged? Improvement in the housing situation both makes it possible for more elderly relatives to live in comfort and harmony with their families and at the same time allows young couples to set up their own establishments. Flats and flatettes specially designed for the aged are being provided by public authorities and religious denominations. The Carrum Downs Home with a population of 180 persons with an average age of over 73 years has six hospital beds with another 20 for the partially disabled, while the rest of the inmates are expected to contribute their labours towards general maintenance and the assistance and care of their fellows. But, according to Dr. Cunningham Dax, "we are getting many more homes for the aged than any community can possibly bear economically". In his opinion money could be spent better on ordinary housing, together with the provision of certain visiting services, such as home-helps, nurses, social workers and meals-on-wheels. Whenever possible the aged should be encouraged to attend clubs and community recreational and social centres. Day hospitals and geriatric clinics are needed for more intensive investigation and treatment, which should include physical, psychiatric and social therapy. Such arrangements encourage patients to seek treatment before their physical and mental disabilities have reached an advanced stage. Long-stay institutions are needed for some of the physically incapacitated. But any abrupt change in the mode of life, especially a break with accustomed surroundings, constitutes a shock to the aged, and removal to a mental hospital should be resorted to only after having been approved by a visiting psychiatric team.

[1] "Growing Old: Problems of Old Age in the Australian Community", edited by Alan Stoller; 1960. Melbourne: F. W. Cheshire Pty. Ltd. 8¼" × 5¼", pp. 212. Price: 15s.

[2] *Brit. med. J.*, 1961, 1:1524 (May 27).

As one speaker at the conference put it, "age has advanced but not the attitude towards age". The problem of aging concerns particularly people who have come to the end of their earning life and who have to subsist on pensions or other limited material resources. Unlike citizens with a fine record of achievement who can retire in comfort, retaining "honour, love, obedience, troops of friends", the drawer of water and hewer of wood who outlives his economic utility is apt to find himself forgotten if not rejected. The position is aggravated when the aging person has become an isolate through misfortune or by reason of temperament. Neglect of bodily, mental and spiritual needs ensues. As André Maurois[3] pointed out, "the true evil is not the weakening of the body but the indifference of the soul". Anything that can be done to teach people at any age to live for worthy purposes will render them more fit to meet not the least critical period of their lives, though it is not to be expected that the average teenager will appreciate that how he conducts himself has an important bearing on the sort of person he will be in forty years' time. Much is being done to lighten the burdens of advancing years, but more attention might be directed to preventive measures. In addition to the ascertainment, correction and treatment of disabilities which conduce to reduced activity and isolation, much can be achieved through social and recreational centres to keep the aged in touch with the community. The time for remedy is past when the old have become "cold and withered and of intolerable entrails". The development of a community conscience and neighbourly interest in these matters is a necessary complement to visiting and other services. The conference rightly stressed the value of local community as against centrally controlled services and efforts. In this connexion it may be pointed out that there is a tendency to exaggerate the need for special facilities for the aging. To treat them as a special group fosters their feeling of isolation from the community. Social and recreational centres should as far as possible retain a family atmosphere in which all ages have the opportunity of meeting together. There is always room for better use of existing facilities, and in this respect information centres perform an important function. In his summary of the work of the conference Dr. Alan Stoller put much of what was most important in a nutshell, when he emphasized the need to avoid patronage, to discourage dependence and to preserve self-respect in the aged. "Above all, they must have something to do, interests to maintain, companionship to enjoy and ideals to live for."

Comments and Abstracts.

FATIGUE IN THE CREW OF JET AIRCRAFT.

THE International Federation of Airline Pilots Associations held its annual world reunion in Mexico in March, 1961. At this meeting Dr. Juin[1] presented the results of an investigation of fatigue affecting the crews of jet aircraft, which he had begun in June, 1960. The reason for the investigation was the complaint by members of aircrews, after Boeing 707 aircraft had been in service for a few months, that when they had operated the aircraft for sufficiently long they were affected by a type of fatigue which they described as much more severe than that experienced in relation to conventional aircraft. The two parts of the investigation were directed to measuring the physical and psychological deterioration after flight, and to determining whether the condition was transitory, deep-seated but reversible, or cumulative and tending to irreversibility. The medical examination was in four parts—a thorough clinical examination with attention to hours of flight in both types of aircraft, and extensive biochemical examination, an electrical physiological examination and a complete ophthalmological examination. The purpose of the last-mentioned was to determine both nervous and muscular fatigue by analysing the amount of power of convergence and divergence remaining in the eyes. The examination was carried out in four periods. The first began with the call-up of the crew at the airport about two hours before take-off, to allow the examinations detailed earlier to be carried out, and finished with their arrival at their destination—that is to say, at the end of the outward journey. The second period began with their arrival at their destination, and extended through their off-duty period, to allow the doctor accompanying them to carry out another series of tests. The third period covered the 24 hours following the call-up for the homeward journey—that is, from about two hours before take-off. On their arrival at their home airport, the crew were subjected to a complete examination, and the urine for this period was collected to allow estimation of the excretion of adrenal hormones. The last period, also of 24 hours, was a rest period; once more the urine was collected for this period, and hormone excretion was estimated, so that any difference could be noted. Crew members involved consisted of 13 captains (average age 46 years), 38 technical members of the crew (average age 39 years), four male commercial employees (stewards, etc.—average age 31 years) and 24 hostesses (average age 26 years). Seven doctors of the examining team were also investigated when they accompanied the personnel on their flights; their average age was 40 years. An attempt was made on several occasions to examine the same subjects on a number of consecutive flights. Two control groups were also examined: a group of 14 male athletes at complete rest, but not in bed, for three days, and 10 women, not athletes, aged on the average about 25 years and thus comparable with the air hostesses.

The most important findings may be summarized in the following way. Personnel flying in jet aircraft were found without doubt to suffer a greater degree of fatigue than personnel flying in conventional aircraft and doing practically the same work. The disturbances observed varied from physiological alarm reactions to a state of endocrine and metabolic exhaustion. These disturbances were also observed in the oculomotor field; both convergence and neuro-muscular excitability were affected. It was found that recovery from this already abnormally severe fatigue was slower and obviously less complete than that from fatigue induced by similar work in conventional aircraft, although the off-duty periods were practically identical. The same observation applies to the cumulative fatigue that occurred.

Some of the details are of interest. Alterations in blood pressure were found; the systolic pressure fell and the diastolic pressure rose. Blood pressure varies little in flights in conventional aircraft. Hæmatological examinations revealed hæmodilution and increased retention of sodium, as well as lowering of the serum potassium level. The urinary excretion of hormones was much lowered, and the personnel showed signs of glandular exhaustion. The 17-ketosteroid excretion was particularly affected; excretion of 17-hydroxycorticosteroids and creatinine was also disturbed. Alarm reactions and reactions indicating adrenal gland exhaustion were found; They were most serious in the pilots and particularly in the captains, who have the greatest responsibility and must maintain the greatest amount of effort. Tests of neuro-muscular excitability produced a significant number

[3] "The Art of Living", 1940, English Universities Press, London.

[1] *Presse méd.*, 1961, May 20.

of abnormal tracings after a jet flight, and recovery after rest was obviously incomplete.

Commenting on the probable causes of all these disturbances, Dr. Juin divides them into physical and psychological factors. He considers that the first physical factor is anoxia, and that it is tied up with altitude. Jet aircraft must fly as much as possible at high altitudes, and this fact makes precise pressurization mandatory. If by any chance sudden oxygen lack occurs, the pilot has only a few seconds of consciousness. This means that pilots must always wear an oxygen apparatus—a source of discomfort and therefore fatigue. The second factor is acceleration. It is not of much importance in commercial flights, because the comfort of passengers has to be considered. Barometric depression facilitates the development of digestive disturbances, sometimes severe; these are important fatigue-creating factors. They may affect people in a pressurized atmosphere, for pressurization brings the pressure in the cabin only to that of an already high altitude. This in turn causes expansion of the gases in the enclosed cavities of the body, and leads to abdominal distension, which is often very painful and produces disturbances of the autonomic nervous system. Fatigue-creating factors tied up with the aircraft comprise those resulting from speed and their corollaries. The reactions of human subjects to sudden changes of climate and to flights involving long time lags also result in disturbances in other bodily cycles—heat regulation, cardiovascular and respiratory equilibrium, the digestive cycle, etc. Digestive disturbances loom particularly large amongst these often serious upsets. Dr. Juin considers that even if perceptible vibrations are much less severe on jet aircraft than on conventional aircraft, the effect of ultrasonic vibrations must not be forgotten. Ultrasonic vibrations are certainly present with great intensity within the acoustic spectrum of aircraft propellers. Finally, there are the effects of radiation from equipment used in certain aircraft (radar, etc.). Navigators appear to be particularly affected by psychological factors; these in turn are intimately linked with physical factors. If it is remembered that true fatigue may arise in any person doing work that requires prolonged and intense concentration and the invocation of a number of the cerebral functions, the application to navigators is obvious. They are subjected to sensory stimuli occurring more and more rapidly, repeated and difficult to interpret; above all, they must constantly remember that the need to maintain complete safety is paramount.

There is no doubt that the speed of aircraft is going to become faster and faster, and the probabilities are that as time goes on they will fly higher and higher. Dr. Juin's investigation suggests some of the complications that are likely to develop and be aggravated by progress—if that is really the correct word.

CULTIVATING A RICKETTSIA.

A NOTABLE ACHIEVEMENT is reported by J. W. Vinson and H. S. Fuller.[1] An organism indistinguishable from *Rickettsia quintana*—the cause of trench fever—has been cultivated on blood agar and in yolk sac and tissue cells. It was derived from the blood of a volunteer who had been infected with trench fever by the bite of infected lice. The patient's blood was streaked on blood agar and this was incubated at 34° C. in a moist atmosphere of 5% carbon dioxide. After 12 to 14 days, minute, mucoid, transparent colonies became visible through the dissecting microscope. The rickettsiæ were readily subcultured.

The organism was propagated in yolk sacs inoculated at seven days from infected louse fæces (as well as from blood agar cultures and tissue cultures) and examined seven or eight days later. Rickettsiæ, scanty in the first passage, increased with serial passage, but were never as numerous as with other rickettsial species. The mortality of the embryo was nil in early passages, appreciable in later ones. The cells in which the rickettsia was successfully cultured and subcultured *in vitro* were of the HEP line, originally derived from a human carcinoma.

Control attempts to culture similar organisms from uninfected lice failed. The rickettsiæ seen in the successful cultures, as well as in lice fed on the patient, appeared to be characteristic of *R. quintana* and, in fluorescent antibody studies, they reacted with convalescent trench fever serum. The authors, however, refrain from claiming identity until the cultured rickettsia is shown to produce typical trench fever in inoculated volunteers.

The achievement of Vinson and Fuller is the more noteworthy in that *R. quintana* has, throughout the 44 years of its history, defied all previous efforts to propagate it except in lice and in primates. When, from 1938, yolk sac was found to be particularly favourable for the growth of rickettsiæ, *R. quintana* remained the odd man out. The absence of a convenient method of cultivating it has seriously impeded its study. The techniques now described open the way for a wide investigation of its biological characteristics.

In a fine review of the properties of pathogenic rickettsiæ, Fuller[2] stated his belief that strong and continued encouragement should be given to efforts to grow these organisms on cell-free media. *R. quintana* is the least unpromising candidate for such efforts, as in the louse its characteristic situation is on the surface of, not within, the gut epithelium. Success has not yet been attained, for blood agar contains both red and white cells. Yet to grow a rickettsia on such a simple medium is a big step forward and rickettsiologists will watch expectantly for further reports.

[1] *Path. Microbiol.*, 1961, 24, Suppl.: 152.

VINCALEUKOBLASTINE.

THE sources of anti-tumour agents are many and varied, and a recent addition is derived from a garden herb, the periwinkle (*Vinca rosea*). The agent itself ("Velbe", "VBL", "Velban", vincaleukoblastine, vinblastine sulphate, $C_{46}H_{58}O_9N_4$) is different from other cytotoxic drugs in being a plant alkaloid. The periwinkle was under investigation for supposed hypoglycæmic activity when its leukopenic effects were observed. Extracts of the herb were submitted to a cancer screening programme in which inhibition of mouse leukæmia was found.

The mode of action is not established, but in experimental systems the compounds capable of reversing the growth-inhibitory effect of the drug were co-enzyme A and various amino-acids, implying an anti-metabolite action.

After proper pharmacology and toxicity studies, the drug has been used in clinical trials (M. E. Hodes *et alii*,[1] O. H. Warwick *et alii*,[2] R. Hertz *et alii*[3]) and is now marketed in this country. While objective and clinical improvement have been described in various malignant diseases, the recommended indications have been cautiously narrowed to Hodgkin's disease and choriocarcinoma in which diseases the remission rates are reported highest. The lack of staging of the disease makes the reported effects difficult to interpret. Restriction of use of the drug to Stage III Hodgkin's disease has not yet achieved the previously described remission rate, although some dramatic improvements have been observed.

Toxic side effects are maximal on white cell production, and dosage is guided by the progress of the peripheral white cell count.

It is fascinating that this herb, long used in primitive communities as an infusion to control scurvy, toothache and diabetic ulcers, should now be identified as a sophisticated anti-cancer agent.

[2] *Arch. Inst. Past. Tunis*, 1959, 36: 311.
[1] *Cancer Res.*, 1960, 20: 1041 (August).
[2] *Ibidem*, page 1032.
[3] *Ibidem*, page 1050.

SHORTER ABSTRACTS.

PATHOLOGY.

CANCER OF VULVA. J. A. Merrill and N. L. Ross, *Cancer*, 1961, 14: 13-20 (January-February).

THE authors present a review of 83 cases of vulval cancer seen over a period of 22 years at the University of California School of Medicine. Sixty-eight of the patients have been followed three years or more. The authors found the disease predominantly in post-menopausal women between the ages of 50 and 80 years. Lymph node metastases occurred in 37%, and in more than half of these, metastases were present in lymph nodes of the contralateral side. The most frequent type of cancer was a well differentiated squamous cell carcinoma. There were, however, examples of melanoma, Paget's disease and other rare tumours. The absolute five-year survival rate was 42%, and the corrected figure was 49%. The authors prefer surgery to any other form of treatment. They found that the five-year survival rate in surgically treated patients was 71%, whereas after irradiation the figure was only 20%. They state also that the most important factor in survival is the presence or absence of lymph node metastases, and that the best results are in patients treated by radical vulvectomy.

HYPOXÆMIA AND PULMONARY HYPERTENSION: A STUDY OF THE PULMONARY VASCULATURE. R. L. Naeye, *Arch. Path.*, 1961, 71: 447-452 (April).

THE pulmonary vasculature of five persons with extreme obesity who had marked hypoxæmia and cor pulmonale, and the pulmonary vasculature of five residents of the Andes who habitually lived above 12,000 feet are compared with that of a control group who died from causes other than cardiopulmonary. In both the obese subjects and the natives who lived at high altitudes, there was a striking hypertrophy of the media of smaller pulmonary arteries. This effect seems to be determined by chronic hypoxæmia rather than hypercapnia. The author states that the actual rôle of arterial muscular hypertrophy in the genesis of pulmonary hypertension is not clear because of other changes such as the increased blood volume, which attend hypoxic states.

KYPHOSCOLIOSIS AND COR PULMONALE: A STUDY OF THE PULMONARY VASCULAR BED. R. L. Naeye, *Amer. J. Path.*, 1961, 38: 561-573 (May).

THE author presents an autopsy study of nine subjects with kyphoscoliosis and cor pulmonale. In each case there was medial hypertrophy and vascular dilatation. The author considers that the vascular changes resembled those seen in the remaining lung after pneumonectomy and he regards the restriction of the pulmonary vascular bed in the small lungs in his cases as being an analogous state. The vascular changes also resembled those seen in hypoxic states, and because there had been hypoxia in each of his cases, he postulates this as an additional factor. Severe pulmonary disease was present in three of the nine cases but no specific effect is attributed to this.

LESIONS OF TESTES OBSERVED IN CERTAIN PATIENTS WITH WIDESPREAD CORIOCARCINOMA AND RELATED TUMOURS. J. G. Azzopardi *et alii*, *Amer. J. Path.*, 1961, 38: 207-225 (February).

IN 17 patients with widespread choriocarcinoma and related neoplasms, frequently with associated gynæcomastia, the authors have observed certain lesions in the testes. In all instances a distinct and well defined fibrous scar was found. In addition, in 13 peculiar amorphous hæmatoxylin-staining deposits were observed in dilated seminiferous tubules. By histochemical methods, these deposits were shown to consist of phospholipid, protein debris, and DNA, and in some cases, mucoid substances and calcium phosphate. Believed to originate from the necrosis of undifferentiated neoplastic tissue of germ cell origin, the presence of these hæmatoxylin-staining deposits lends support to earlier reports of burned-out primary testicular tumours. In eight cases there were remnants of mature teratoma, and in four there were micoscopic foci of seminoma in relation to the scars.

The observations are interpreted to indicate regression of primary testicular tumours. Biological factors responsible for regression in a primary neoplasm remain to be established. Certain alterations were also observed in the germ cells of the testis adjacent to the scar; the significance of these could not be determined.

HEALED EXPERIMENTAL GASTRIC ULCER IN THE RAT: REULCERATION RESULTING FROM CORTISONE ADMINISTRATION. D. S. Kahn *et alii*, *Amer. J. Path.*, 1961, 38: 177-187 (February).

EXPERIMENTAL GASTRIC ULCERS were produced in a group of rats by means of thermocautery. Fifty-five days after production of the ulcers, by which time they were completely healed, intramuscular injections of cortisone acetate were begun. One group received 0·05 mg. per gramme of body weight daily, and a second group, 0·075 mg. per gramme daily. Both groups receiving cortisone showed a high incidence of penetrating reulceration in the healed ulcer area. This was more pronounced in the group receiving the higher dose (41%) than in that given the lower dose of cortisone (14·3%). In contrast, a group of rats with a similar healed ulcer, but not receiving cortisone, had no reulceration. The mechanism by which cortisone results in penetrating reulceration of a healed gastric ulcer in the rat was not fully elucidated by this investigation, but it appeared unlikely to be due to the action of cortisone on either gastric acidity or fibroplasia. The results of the experiment bore some resemblance to the reactivation of healed peptic ulcer in patients receiving cortisone.

A CASE OF IRON INTOXICATION CAUSED BY RONCOVITE. H. L. Large, *Amer. J. clin. Path.*, 1961, 35: 427-434 (May).

THE author reports a case of iron intoxication in which an 18-month-old Negro boy swallowed a fatal dose of ferrous sulphate. The child became drowsy, vomited several times and eventually died in peripheral circulatory failure. The autopsy findings suggest that the untoward effects of iron resulted from absorption and were not due entirely to necrosis of the small intestine. The liver damage was confined to the right lobe, presumably due to portal streamlines.

JUVENILE LIVER. J. D. Morgan and W. S. Hartroft, *Arch. Path.*, 1961, 71: 86-88 (January).

THE authors have examined the livers of subjects dying between birth and 16 years of age. They found that the juvenile pattern of liver plates had changed from multilayering to one-cell-thick plates in all cases by the age of five years. Since cirrhosis, hepatitis and liver regeneration of any type are accompanied by reversion to the juvenile multilayered plates, the authors suggest that observations of the plates may be very useful when a liver biopsy specimen is fragmentary or unrepresentative. This would be especially helpful when the biopsy is entirely obtained from a regenerating nodule in a cirrhotic liver. In such cases the liver plates are predominantly multilayered.

ISOLATED MYOCARDITIS AS A CAUSE OF SUDDEN OBSCURE DEATH. C. Corby, *Medicine, Sci. Law*, 1960, 1: 23-40 (October).

ISOLATED MYOCARDITIS is the name given to a myocarditis of obscure ætiology in which the lesion is found only on histological examination of the heart. A series of 32 cases of sudden death is presented in which this diagnosis was made In 28 death was a sudden catastrophe in apparently healthy people and at autopsy there were minimal naked eye changes. In four cases, there was progressive heart failure. There is a description of the varying types of inflammatory reaction encountered. In London, this lesion accounts for more than 50% of the obscure autopsies performed by the forensic pathologist.

SPREAD OF CANCER IN UTERINE CERVIX AS SEEN IN GIANT HISTOLOGICAL SECTIONS. G. H. Friedell and L. Parsons, *Cancer*, 1961, 14: 42-54 (January-February).

GIANT TISSUE SECTIONS from the whole specimen of surgically removed uteri were examined in 19 cases of cervical cancer. The authors found spread of tumour into the paracervical and paravaginal tissue in almost all cases, as well as frequent involvement of the uterine body. In the paracervical and paravaginal tissues spread was in all directions but antero-posterior spread was much more prominent than lateral spread. Only rarely was tumour found in parametrial tissue above the level of the internal cervical os. Direct spread of tumour in perineural spaces was very common, yet lymph node involvement was relatively infrequent. To account for this apparent anomaly the authors have sug-

gested that these tissue spaces are not lymphatics. However, they do consider this to be an important method of spread to the periureteric and rectal regions.

MYOCARDIAL ALTERATIONS ASSOCIATED WITH PHÆOCHROMOCYTOMAS. I. K. Kline, *Amer. J. Path.*, 1961, 38: 539-551 (May).

VARIOUS MYOCARDIAL LESIONS, including myocarditis, are caused in experimental animals treated with pressor amines, and this has its counterpart in myocarditis in humans with phæochromocytoma. Among seven patients with phæochromocytoma there was found to be a myocarditis at necropsy in four. These four patients succumbed unexpectedly, and it seemed likely that acute cardiac failure was caused by the myocarditis. The myocardial lesions resemble those of the experimental animal treated with noradrenaline, and consist mainly of severe degenerative changes in groups of muscle fibres, foci of necrosis and chronic interstitial inflammatory exudation.

PHYSIOLOGY.

REVERSAL OF DIURNAL TEMPERATURE RHYTHMS IN MAN. G. W. G. Sharp, *Nature (Lond.)*, 1961, 190: 146-148 (April 8).

SKIN TEMPERATURES (recorded in the axilla) were measured on six men and two women in the course of an expedition to Spitzbergen where in summer the "day" is uniformly light for 24 hours. After a control period, their daily routine of working and sleeping was reversed exactly by 12 hours. It was found that after an interval of three to four days, their diurnal variation of body temperature also reversed; on return to a previous routine, the temperature variations also returned to normal after three to four days. It is concluded that diurnal body temperature variations depend ultimately on habit and environment, with light as the most likely controlling stimulus.

SIGNIFICANCE OF CARBONACEOUS METEORITES IN THEORIES ON THE ORIGIN OF LIFE. J. D. Bernal, *Nature (Lond.)*, 1961, 190: 129-131 (April 8).

ANALYSIS of some meteorites has shown that they contain carbonaceous material with a high oxygen content suggesting organic origin, and containing paraffinoid hydrocarbons with 15 to 24 carbon atoms. While the origin of this matter is still uncertain, a possible mechanism for its formation may be found in the action of cosmic rays and solar particles on accretions of methane, ammonia, water, etc., condensing out of the cool gas cloud originally surrounding the sun. The relevance to life on earth is that such meteoric matter may have provided "the *primary accumulation* of elements and free energy for the first synthesis of life *on this earth*".

MEASUREMENT OF VISCOSITY OF BIOLOGIC FLUIDS BY CONE-AND-PLATE VISCOMETER. R. E. Wells *et alii, J. Lab. clin. Med.*, 1961, 57: 646-656 (April).

THE usual determination of the viscosity of blood by using a capillary viscometer shows a shear-dependence which is attributable to the combination of two effects, namely a true shear-dependence of the suspension and the formation of a marginal cell-depleted zone. In this paper the authors describe the use of the cone-and-plate viscometers, in which marginal zone effects are probably very small, and the shear is everywhere constant. Results are given of measurements on whole blood, showing a fall in viscosity with decreasing hæmatocrit and with increasing rate of shear. Some specimens of mucus from the respiratory tract were also examined, using a modified cone with small pegs extending from it. The method appears a very promising one.

RESPIRATORY CONSEQUENCES OF PASSIVE BODY MOVEMENT. M. E. Dixon *et alii, J. appl. Physiol.*, 1961, 16: 30-34 (January).

STARTING from the observation that pilots in low-flying high speed aircraft experienced a hyperventilation in excess of metabolic needs, the authors carried out experiments using a motor driven bicycle, where seat, handlebars and pedals could be moved separately, and the subject's ventilation and alveolar pCO_2 measured. They found that while movement of the trunk and arms led to hyperventilation and hypocapnia (a fall of up to 10 mm. of mercury in pCO_2) movement of the legs did not. No single mechanical explanation could be found and the suggestion is put forward that labyrinthine reflexes may be involved.

RESPIRATORY SINUS ARRHYTHMIA: LAWS DERIVED FROM COMPUTER SIMULATION. M. Clynes, *J. appl. Physiol.*, 1960, 15: 863-874 (September).

AN analogue computing system has been constructed, to solve a set of equations intended to describe the functional relation between heart-rate and lung volume. A very satisfactory prediction was achieved for a wide range of respiratory rates and patterns, but only when the system was assumed to contain two separate mechanisms. The first of these was assumed to be sensitive to inspiratory movements and the latter to expiratory movements; they both have the same kind of effect on heart rate; the physiological basis is suggested to lie in the pulmonary stretch receptors.

SOME FACTORS MODIFYING THE EXPRESSION OF HUMAN STRENGTH. M. Ikai and A. H. Steinhaus, *J. appl. Physiol.*, 1961, 16: 157-163 (January).

MEASURING maximum voluntary effort by the forearm flexors, the authors have shown that this may be significantly increased above control values by various "disinhibiting" procedures. Shouting or the sound of a gunshot led to 12% and 7% increase respectively, while hypnotic suggestion could increase (26%) or decrease (–31%) the effort. Alcohol and adrenaline had no significant effect, but amphetamine sulphate (30 mg.) led to a 13% increase. The relation of psychological to physiological events in the training of athletes is discussed in the light of these findings.

EFFECTS OF EXERCISE ON HEART OUTPUT OF THE DOG. M. D. Balie *et alii, J. appl. Physiol.*, 1961, 16: 107-111 (January).

THERE has been a good deal of dispute about the mechanism of increasing cardiac output in exercise, and two schools of thought exist; one maintains that the increase is largely due to increased heart rate and that stroke volume stays relatively constant, and the other that stroke volume increases significantly. This paper reports measurement of cardiac output by the direct Fick method on seven dogs exercising on a treadmill. The authors found that the average stroke volume in strenuous exercise (12·9 km/hr. on 18% grade) increased 82% and that a good correlation existed between oxygen consumption and stroke volume.

VASOMOTOR CONTROL OF THE CORONARY CIRCULATION. A. Juhasz-Nagy and M. Szentivanyi, *Amer. J. Physiol.*, 1961, 200: 125-129 (January).

BY using different parameters of stimulation the authors were able to distinguish the effects of stimulating pre- and post-ganglionic sympathetic fibres on the coronary blood flow in dogs. They found that pre-ganglionic fibres in the accelerator nerves were responsible for coronary vasoconstriction and were without effect on cardiac metabolism; the effects of stimulating post-ganglionic fibres were more complex since they included increases in O_2 and lactate consumption. They suggest that pre-ganglionic dilator fibres may be present in the cardiac sympathetic nerves; the vagus does not appear to contain any genuine vasomotor fibres.

HEART RATE AND O_2 CONSUMPTION AFTER TRIIODOTHYRONINE IN THE MYXŒDEMATOUS RABBIT. A. Guz *et alii, Amer. J. Physiol.*, 1961, 200: 58-60 (January).

RABBITS were made myxœdematous by either thyroidectomy or the injection of 5 mc. of ^{131}I several months before the experiments. After determination of the basal oxygen consumption and heart rate 200-400 μg. of triiodothyronine was injected intravenously, and the changes in these two functions followed for four hours and longer. It was found that heart rate increased 1-3 hours after the injection and invariably before the rise in oxygen consumption which occurred 3½ to 14 hours after the injection, showing that the hormone directly or indirectly has a specific action on cardiac muscle and that this is not just a response to altered total metabolic level.

The Wider View.

ON VISITING THE PATIENT IN HOSPITAL.

IN most instances a patient in a hospital is a helpless person. According to his temperament he may or may not make his presence felt among the staff; but by and large he is deprived of the things he cherishes most—his personal freedom, his home and family, his close friends. All this is in addition to the abnormal physical condition that has put him there, and it is obvious that he needs to be adaptable, if he is to settle down in his changed circumstances. There is no need to enlarge on all these collateral details, since they are well known. In order to mitigate the strange and institutional atmosphere surrounding the patient, hospitals have visiting hours, during which the patient may for a short time every so often be brought the personal contacts that are an essential ingredient of his life. (Visiting hours are also a help to the usually overworked hospital staffs, since they can leave the patient in other hands for an hour or so and catch up on the jobs that are always accumulating.) This is good, and merciful; but unless those who visit the patient have some kind of human understanding, the value of their contact with him will be quite offset by deleterious effects on him. Those who have had but little to do with sick people in hospital may be pardoned for not knowing what rules they should follow; indeed, there is room for a small leaflet suitable to be given to all hospital visitors setting out a few of the obvious do's and dont's. For the present, some dont's loom rather largely, and they may be set out as follows.

1. Don't visit the patient too soon. Even if he is allowed visitors, he may not really be able to cope with any but his immediate family or his responsible friends—and they, too, can be extremely wearing. There was, for example, the young adult who underwent a rather gruelling tonsillectomy, and whose anxious mother insisted on visiting her in hospital three times a day, every day, and on staying for the longest possible time on each occasion. The patient was acutely conscious of the strain that both were undergoing. This was no particular help. Everyone, ill or well, needs at least a modicum of solitude, and a hospital, quite apart from visitors, is not the ideal place in which to find it.

2. Don't stay too long. Most patients who are ill enough to be admitted to hospital are easily tired. It is sheer cruelty to allow (or expect) the patient to be witty and entertaining, or even to respond to his witty and entertaining visitors, if he is in pain or exhausted by a long illness or a severe operation. In the early stages of recovery, a visit of five to ten minutes is long enough. Even later in convalescence, quite often the patient will be delighted to see you next time if you limit your visit to about fifteen minutes.

3. Don't make one of a crowd round the patient's bed. If other visitors begin to arrive, make your departure—or at least retire to the background. It is exhausting for a sick person to have to try to catch the conversational ball from a number of different directions and keep on passing it back.

4. Don't "cheer the patient up" to such an extent that he becomes excited, has a rise in temperature and cannot sleep, and don't make him laugh so much that his stitches burst.

5. Don't regale the patient with the latest disasters affecting his home, his family, his close friends or his business. Don't especially, if the patient is a wife and mother, tell her of her husband's increased hypertensive headache due to the strain of her absence, or of Junior's broken arm, sustained because he was alone in the house for a short time when he came home from school and fell off the table.

These are only the basic restrictions of visiting; many more will occur to those who think about the question, especially if the fundamental requirement is kept in mind: "Protect the patient from a plethora of people; otherwise he will suffer from a paucity of peace."

Out of the Past.

THE AUSTRALIAN MEDICAL GAZETTE.[1]

[From the *Australasian Medical Gazette*, April 21, 1902.]

THE *Gazette* has now completed the 20th year of its publication, and although it cannot be said that it has "pursued the even tenor of its way," still the year has been a fairly satisfactory one financially. In August Dr. Knaggs resigned the editorship, a post which he had filled for 6½ years, and after an interval of three months Dr. Rennie was appointed by the Council to fill the vacancy. The new Editor has entered upon his duties very vigorously, and has made several changes in the arrangement and nature of its contents, which it is hoped will make the *Gazette* more appreciated by its readers. As predicted in last year's report, there has been some falling off in revenue, due to the numerous resignations from the Victorian Branch, but the inclusion of the West Australian Branch as a subscriber to the *Gazette* for its members has to a large extent made up for the loss from Victoria. It has been the custom ever since the purchase of the *Gazette* by the Branch to pay the monthly account for printing by a promissory note at three months, but during the past year all the outstanding promissory notes have been paid off, and the printing account is now paid monthly by cheque. The payment of 15 monthly printing accounts in one year has necessarily disarranged the finances, hence the smaller cash balance than usual at the end of the year. The balance-sheet and profit and loss account, duly audited, will be found herewith.

W. H. CRAGO,
Manager.

December 31st, 1901.

Medical Societies.

PÆDIATRIC SOCIETY OF VICTORIA.

A MEETING of the Pædiatric Society of Victoria was held on November 9, 1960, at the Royal Children's Hospital, Melbourne. The meeting took the form of a symposium entitled "Lipidoses in 1960".

Lipidoses in 1960.

Acute Infantile Gaucher's Disease.

DR. B. W. NEAL said that in 1882 a French dermatologist called Phillipe Gaucher had presented a thesis to the Faculty of Medicine in the University of Paris entitled "*De l'épithéliome primitif de la rate*". He subsequently recognized that the condition he had described was due, not to neoplasia, but to a generalized storage disease of the reticulo-endothelial system. Gaucher had described the "adult", or chronic, form of the disease; but that form, it was now known, could occur at any age. It was the more common form of the disease, and was clinically characterized by splenomegaly, anæmia, hypersplenism, brown pigmentation of the legs and face, and the "Erlenmeyer flask appearance" in the X-ray films of the ends of the long bones. Patients with that form of the disease usually led a long, nearly unhandicapped existence, especially if aided by splenectomy.

Dr. Neal said that that benign course was in striking contrast to that of the acute infantile form of the disease, which rapidly led to death within the first two years of life. The affected infant, after a few months of normal existence, developed apathy followed by physical and mental deterioration. Abdominal enlargement due to hepatosplenomegaly was usually present, but more striking were the central nervous symptoms, prominent among which were hypertonia and opisthotonus and a convergent squint. Dysphagia and choking spells distressed the infant, and as increasing pulmonary infiltration occurred, a severe cough added to his misery. Progressive cachexia and anæmia,

[1] From the original in the Mitchell Library, Sydney.

usually associated with infection, led to death. A "vertical" genetic pattern, with cases appearing in successive generations, had been described; but a "horizontal" pattern, with involvement of the siblings in one generation, was more common. The asymptomatic parents in such pedigrees might be found to have Gaucher cells in their bone marrow, presumably representing the heterozygous manifestation of a recessive gene.

Dr. Neal then described the clinical features of a child with the acute infantile form of the disease. He had presented at the age of four and a half months, because for the preceding two weeks he had intermittently had "a noise in his throat" and had choked on his feedings. He was the first baby of very anxious young parents of Anglo-Saxon origin. His mother had had a normal pregnancy and labour, and he had thrived at the breast. On examination, the patient was a well-nourished infant of good colour. Some stridor and internal strabismus were noted, and a most striking opisthotonus. His spleen was not palpable. The next three weeks were spent in hospital, where examinations of his blood and cerebro-spinal fluid, and X-ray examinations of his skull, spine and alimentary tract all failed to reveal any abnormality. He remained difficult to feed, and his squint and opisthotonus persisted, but his spleen did not become palpable and his general condition remained good. At the age of six and a half months outpatient review revealed moderate anæmia, and episodes of stiffening and breath-holding were noted. At seven months splenomegaly was detected for the first time. After the baby's readmission to hospital he required tracheostomy, his spleen and liver rapidly enlarged and he developed severe anæmia and thrombocytopenia, leading to hæmorrhage and death in two weeks. The correct diagnosis was not established during life, but post-mortem examination revealed widespread infiltration of many organs with typical Gaucher cells, and such cells had also been identified on reexamination of a specimen of bone marrow aspirated during life.

Niemann-Pick Disease.

DR. M. J. ROBINSON said that he had seen three patients with Niemann-Pick disease during the preceding 12 months. The first child presented at the age of six months with a history of vomiting and diarrhœa. Previously she had been very well, but her weight of 13 lb. on her admission to hospital was below the tenth percentile for her age. She had been breast fed, but over the preceding few weeks her mother had felt that her milk supply was failing, and because of the baby's incessant crying and slow weight gain had decided to wean her. The baby's mental progress had been good. She had smiled at six weeks, and at six months could sit with support, play with a rattle, make cooing noises and take a lively interest in her surroundings.

She was a little apathetic on her admission to hospital, and her temperature was 39·5° C.; her liver was palpable two to three fingers' breadth below the right costal margin, and the spleen two fingers' breadth below the left costal margin. No other abnormality was noted. The diarrhœa and vomiting rapidly cleared with routine treatment, but the hepatosplenomegaly remained. A blood examination revealed atypical lymphocytes suggestive of infective mononucleosis, but the Paul-Bunnell test gave a negative result. Those abnormal cells were noted in the first four blood examinations. The infant remained lethargic and lost weight, despite a reasonable food intake. Lumbar puncture revealed clear fluid under normal pressure, but containing 120 mg. of protein per 100 ml. A bone-marrow biopsy was reported as giving normal results. The liver and spleen felt very hard, indicating some storage disease or reticulosis. There were no skin manifestations. No abnormality was detected by X-ray examination of the chest and skull, by blood cultures, by the Wassermann test, by urinary chromatography, by examination of the urine or by liver-function tests. X-ray examination of the long bones showed thinning of the cortex with generalized osteoporosis. A liver biopsy specimen was taken after laparotomy. The liver was pale and firm, and microscopically early portal cirrhosis was evident. Some of the liver cells and Kupffer cells were swollen, suggesting a storage disease. The enlarged spleen, the normal blood glucose level, the lack of acidosis and the normal result of an adrenaline tolerance test excluded glycogen storage disease.

After two months the child was allowed to go home. Her subsequent course was characterized by lethargy, retrogression, failure to recognize her mother and obviously poor vision. In addition, her abdomen became progressively swollen and the extremities grossly wasted. Weight gain was very slow. The liver enlarged to 7 cm. below the right costal margin and the spleen to 11 cm. below the left costal margin, both being very hard. A fine maculo-papular rash was present over the abdomen. Liver biopsy was performed again, and that, together with a review of the original bone-marrow biopsy, established the diagnosis of Niemann-Pick disease. Although the fundi had been examined on many occasions without anything but pale discs having been noted, cherry-red spots were finally seen. The mother was of Jewish descent, two siblings were alive and well, and both parents were well. Bone-marrow biopsies of the parents gave normal results.

Dr. Robinson said that the child's subsequent course was one of progressive mental and physical retardation, blindness and abdominal distension.

Dr. Robinson's second patient had been referred to the Royal Children's Hospital because of slow mental development. His parents had been particularly worried because the only sibling, a boy of five years, was deaf and slightly retarded. The patient at six months had not been supporting his head, seemed to take little notice of his surroundings and had a full abdomen with accompanying constipation. On examination, he had coarse features suggestive of gargoylism or perhaps cretinism; but apart from very doubtful wedging of his first lumbar vertebra, X-ray films of the skeleton had not helped. There was no hepatosplenomegaly, and the fundi, although slightly pale, had appearances within normal limits.

The baby was readmitted to hospital two months later with unexplained pyrexia. His mental apathy had persisted, his sight seemed poor and he had made little progress. A meningococcus had been grown on blood culture, and he had responded to specific therapy. During this illness cardiomegaly, dyspnœa and hepatomegaly had suggested congestive cardiac failure, and electrocardiograms suggested possible pericarditis. He had improved on digitalization, but cardiomegaly and hepatomegaly remained, and the spleen became palpable. Bone-marrow biopsy was carried out with a lipoid-storage disease in mind, and the result proved positive. It was interesting that there was no consanguinity and no Jewish or central European ancestry on either side. Repeated examinations of the fundi failed to demonstrate a cherry-red spot. His progress was marked by progressive lethargy and hyperacusis, but little physical deterioration. The liver and spleen showed progressive enlargement.

Full blood examinations, X-ray examinations of the long bones, and bone-marrow examinations of the parents and sibling were carried out. The results in relation to the parents were negative, but the elder child had lipoid-containing cells scattered throughout the bone-marrow preparations. This boy had been born one month prematurely, and had always been slow to develop. Convulsions had occurred at five months, but not subsequently. He was deaf and backward, with poor speech. There was no hepatomegaly, splenomegaly, skin rash or macular degeneration. Clinical examination failed to reveal the progressive physical and mental retardation which characterized the infantile form of Niemann-Pick disease.

Dr. Robinson said that the disorder had been described about 1914 by Niemann, and Pick a few years later had described the pathological features. As in his own (Dr. Robinson's) two cases, the disorder started between four and six months, with progressive physical and mental retardation. There was progressive abdominal enlargement due to hepatosplenomegaly, with wasting of the extremities. Occasionally pigmented skin lesions were present. There was progressive anæmia, and in about 50% of cases cherry-red spots were seen in the maculæ. The disease was progressive, with apathy, emaciation and death before the age of five years. Recently cases had been described in older children and in young adults; those patients did not suffer the emaciation and mental retardation of the infants. Perhaps the third case discussed would fit into that category. The diagnosis depended on the demonstration of characteristic Niemann-Pick cells in liver, lungs, lymph nodes, spleen, bone marrow and nervous system. In the infantile form, almost no organ escaped. Recently rectal biopsy had been performed to demonstrate the infiltration in ganglion cells of the myenteric plexuses. Similar ballooning of nerve cells was seen in Tay-Sachs disease and in Hurler's syndrome. The disorder appeared to be transmitted as an autosomal recessive. It had been suggested that the infantile malignant form was the homozygous form, and that the adult chronic form might represent the heterozygote. That had not been clarified. The underlying defect was unknown, but Thannhauser had postulated that the mechanism of conversion from ceremide to sphingomyelin was intact, but that the mechanism for reversing the step was defective. That resulted in the accumulation of sphingomyelin in the various tissues.

Pathological Considerations.

DR. L. TAFT said that lipidoses might be defined as heredofamilial diseases characterized by intracellular lipid deposits. The group included Gaucher's disease, Niemann-Pick disease and Tay-Sachs disease (in which the base was sphingosine, a complex amino-alcohol). The history of those diseases was relatively recent, requiring the observations of the cellular pathologists of the late nineteenth century and the biochemists and genetecists of the present century to document them.

In Gaucher's disease, the lipid was a cerebroside, kerasin, in which the normal hexose component galactose was replaced by glucose, in Niemann-Pick disease it was the phospholipid sphingomyelin, while in Tay-Sachs disease it was probably a ganglioside. In the former two conditions, the lipid was synthesized in reticulo-endothelial cells, and hence might be found in almost any organ of the body. In Gaucher's disease the spleen was most heavily infiltrated, while in Niemann-Pick disease the liver was more enlarged. Infiltration of the lungs might give rise to dyspnœa and radiological mottling. In Niemann-Pick disease the leucocytes might show cytoplasmic lipid vacuolation and the neurons might also contain lipid. The ganglion cells of the rectal mucosa were suitable for examination in that respect. In Tay-Sachs disease the lipid was deposited only in neurons.

As could be seen in smears stained with Romanowsky dyes, the cell morphologies were distinctive. They were large cells up to 90μ in diameter. Gaucher cells were found particularly in the tails of films, with abundant basophilic cytoplasm containing paler areas which imparted a wrinkled appearance. The Niemann-Pick cell possessed a foamy vacuolated cytoplasm, which was particularly fragile. In tissue sections the cells stained moderately intensely with neutral fat stains and also with periodic acid-Schiff stain; but a phospholipid stain, such as Baker's acid hæmatin, gave characteristically positive results in Niemann-Pick disease. Macroscopically, the groups of cells showed in tissues as pale or yellow granular areas, but the architecture of the tissue was not destroyed.

Vacuolation of the neuronal cytoplasm was more common in Tay-Sachs disease, the usual cerebral changes consisting of neuronal atrophy, with some demyelination and sclerosis. The dentate nucleus of the cerebellum was most frequently involved in that process. Lipid infiltration of the macular cells was followed by atrophy revealing the underlying choroid as the cherry-red spot, again most characteristic of Tay-Sachs disease.

Skin pigmentation involving the head, neck and legs, conjunctival pingueculæ, bone involvement and hæmocytopenia were often due to hypersplenism and responded to splenectomy. One such case had been reported by Dr. Reginald Webster in 1939; the patient was alive and in reasonable health 22 years later.

Nutritional disturbances, cerebral retardation and pulmonary involvement were features of the acute or "infantile" type of lipidosis, for which the prognosis was much poorer.

The disease tended to occur in the siblings of one generation, and showed no particular sex incidence. Parental consanguinity had been reported in only approximately 10% of cases, but the racial and geographical incidence suggested that general inbreeding within certain communities might favour the occurrence of cases which had been reported in Europe and the British Isles, the United States of America, India and Japan. Those facts were in keeping with an autosomal recessive genetic transmission.

Initial diagnostic investigations included full blood examination and radiological examination of the chest and skeleton. The examination of films of marrow, spleen or lymph-node aspirates, and biopsy of one affected tissue such as liver or rectal mucosa, with the appropriate stains, provided a definitive diagnosis.

DR. J. OWEN asked whether in fact the diseases were due to metabolic disturbances. Might they not be neoplastic? In myelomatosis, abnormal cells full of protein were found; but the condition was regarded as one of neoplasia despite the biochemical abnormalities.

Dr. Taft replied that the cytological and histological features of the lipidoses were not those of a malignant neoplasm, nor could the genetic facts of those conditions be explained on such a basis.

Dr. Collins outlined the biosynthesis of the compounds involved. He mentioned the steps involved in the transformation of sphingosine into sphingomyelin (Niemann-Pick disease), ganglioside (Tay-Sachs disease), and cerebroside (Gaucher's disease). Each step represented one enzymatic reaction. The final product inhibited the previous step or steps, but with genetic defects that inhibition presumably no longer occurred. Although the idea was unproven, it was probable that each of the diseases was due to a genetic defect affecting a particular enzyme.

Dr. Taft commented that the structure of the cells indicated that they synthesized lipid. They were not mere macrophages which ingested foreign material. The diagnosis of lipidosis should be thought of in cases of unexplained familial mental retardation, as well as in cases of hepatosplenomegaly.

Clept Lip and Cleft Palate in Singapore.

DR. G. KEYS-SMITH presented a paper entitled "A Study of Cleft Lip and Cleft Palate in Singapore", a survey of 359 cases of his own, and analysed the clinical features of the condition and the problem of treatment in such a community as existed in Singapore.

Correspondence.

THE MANAGEMENT OF MALDESCENDED TESTIS.

SIR: May I be allowed to comment on the paper by Dr. David Dey on "The Management of Maldescended Testis"? It is based, as we know, on a large experience. The ideas are stated with clarity and the excellence of its presentation will obviously influence those who read it. While one must agree with most of it, there are some points which deserve comment.

A testis which lies in the superficial inguinal canal must be classed as ectopic. These are not included in the paper, although reference is made to "cases in which there is a short cord and a hernial sac and the gland lies near the external ring". The testis in the superficial inguinal pouch lies between the external oblique muscle and Scarpa's fascia, and often has a sufficiently long cord to enable it to be placed in the scrotum without difficulty. These are often described as being in the canal. In a sturdy child it must often be a most difficult thing to feel the small testis when it lies actually in the inguinal canal. The ectopic group should also include cases where the testis lies on the adductor aspect of the thigh, and of which I have seen two.

One would not quarrel much with the use of the Ombredanne manœuvre. The statement that it "will subsequently draw it down to a lower level" is a little optimistic, for the same reason one has never believed that the scrotal attachment of the gubernaculum would enable it to pull the testis down.

It is with the paragraph on the use of hormones that one would quarrel, because it suggests prejudice rather than logic. True it is that our early optimism about the use of hormones has waned, but not completely so. Their use was based on sound laboratory experiments on the Macaque monkey with accurate measurements of both dose and anatomical change where the possibility of retractile testis did not exist. Dr. Dey's assumption is that a testis which comes down following hormone treatment must be retractile. This assumption is unwarranted and in many cases incorrect. Then a statement "it seems illogical to use them in unilateral cases" is open to serious criticism. Some people use hormones for the treatment of non-malignant conditions, or even malignant conditions, of a breast. Must one assume this is illogical if the other breast is normal? And again, hyperplasia of one lobe of a thyroid gland is by no means rare. Must one assume that this cannot be of hormonal origin if the other lobe is normal?

Dr. Dey says "it is difficult to believe that they will dissolve the hernial sac". Who has said that they will? One has often had to repair an inguinal hernia after the successful treatment of maldescent by hormones. As to the hernial sac being "the shortest element in the short cord", one feels that this is irrelevant. The normal descent of the testis in the fœtus is always accompanied by a hernial sac. It is called the processus vaginalis.

"Deformities of the gland and the abnormal development of the epididymis" are not important mechanical factors in the production of undescent. On what experimental evidence is based the statement that they "presumably also militate against a response to natural hormones"?

One is aware that "a fascial barrier exists at the opening of the scrotum", but gonadotrophic hormones acting through the testis soften all surrounding connective tissue in the

child as in the fœtus. One would agree that cases of bilateral maldescent would seem to offer the better indication for the use of hormones. Sadly enough, experience has proved them to be more resistant to treatment.

I would agree that "precipitated puberty" would create "social difficulties"; but such an occurrence is found where administration in high doses has been prolonged and, indeed, is of very little importance when hormones are administered at the right time—that is, in the eleventh year. Despite the recent tendency to treat these cases early, there is very little justification for it, since so many undescended testes will come down between four and eleven years of age with very little permanent defect in spermatogenesis.

My name has been mentioned regarding the position of the abdominal testis just inside the internal ring. This is the considered opinion of some of the best anatomical brains in England and Germany. My teaching has been aimed to correct the fallacy which has crept into surgical teaching that a retained testis may be anywhere between the kidney and the groin. This is unaltered by the occasional finding of a testis in the position of an ovary. This abnormality is a more complicated one with other anatomical deviations from the normal, and is not simply one of a retained testis.

The association between maldescent and malignant disease of the testis is not a direct one. All one can say is that maldescent is more than ten times as common in people with malignant tumour of the testis than in the normal. John Hunter, with characteristic insight, stated that a testis does not come down because it is abnormal. It may be for this reason that it has a tendency to develop malignant disease. Of course, I do not know, but it is not abnormal position of the testis which causes malignancy. The latter is unaffected by any successful treatment whereby the testis achieves its normal position. All such testes, therefore, should be where they can be watched. The development of a malignant tumour in an abnormal testis may well mean death of a patient. The cases which I have seen have had a long history defying diagnosis and have usually been beyond help or cure. If a testis cannot be brought down into the groin from the abdomen, it should be removed. To say that "it would be equally logical to excise all undescended testes" appears unjustifiable.

May I repeat that I made no mention of all those sensible and important opinions which Dr. Dey's paper contained, with which I am in complete agreement. In those matters in which I differ from Dr. Dey I am not alone, though I have been in this city "a voice crying in the wilderness". P. M. F. Bishop and others have written confirming these opinions on carefully controlled work. His paper, setting out my views more ably than I can, is found in the *British Medical Journal* of June 14, 1958, page 1367.

Yours, etc.,

NORMAN WYNDHAM.

100 Carillon Avenue,
Newtown,
New South Wales.
August 10, 1961.

SIR: I have read Mr. David Dey's thoughtful article on maldescent of the testis with great interest (MED. J. AUST., August 5).

I was delighted to see that he favours the Ombredanne operation as the one of choice; I have used this technique to the exclusion of all others for more than 25 years, and the passage of time has confirmed my opinion that all other methods of attempting to hold the testis in position in the scrotum are barbarous and should be abandoned. Once the problem of closing the hole in the scrotal septum to just the required size has been mastered, the method is practically foolproof, provided the vas and vessels can be freed sufficiently to place the testis in the scrotum.

A high retroperitoneal dissection, as advocated by Robert Gross, freeing of the internal ring and tying of the inferior epigastric vessels to avoid kinking of the cord, are essential steps in a difficult case; great care must be taken to avoid bleeding from the pampiniform plexus, and the delicate vessels of the vas itself should be preserved.

I cannot quite agree with Mr. Dey in his definition of what is an ectopic testis. Admittedly, as he states, ectopic testes actually lying in the perineum or over the pubis at the root of the penis are extremely rare; I have seen three of the former and none of the latter in the last 15 years. However, excluding children with retractile (spastic) testes, in quite a proportion of cases of maldescent—more than half in my series—the testis has been found lying freely movable in a superficial inguinal pouch. It is my practice when exposing the testis in this situation to dissect out the gubernaculum and pull firmly on it to demonstrate its lower attachment; in the great majority this attachment has been clearly found to pass beyond the inner end of the inguinal ligament into the medial aspect of the thigh. These cases should, I think, be included in the group of ectopic testes, for it is this abnormal gubernaculum attachment which is the prime factor in their inability to descend normally into the scrotum. The majority of this large group have an associated total funicular inguinal hernia.

I agree with Mr. Dey that gonadotrophic hormone has a limited usefulness in cryptorchidism. It has a dramatic effect on cases of double cryptorchidism associated with benign adiposo-genital dystrophy, bringing both testes down into the scrotum often after only a few injections. How many of these particular testes would, however, eventually descend unaided into the scrotum is anybody's guess.

In those cases where one testis has not appeared at all by the age of 11 years (a normal testis on the other side being normally descended), I always explore transperitoneally. On every occasion but one I have found the testis lying on, or just below, the pelvic brim, not far from the internal ring, and obviously incapable of being brought into the scrotum. In this event I always unhesitatingly remove the intraabdominal testis. If this is done before puberty, I am convinced that the remaining testis undergoes compensatory hypertrophy to a degree that ultimate fertility will be unimpaired. This view is fortified by the evidence one has of boys who have suffered an atrophied testis from mumps orchitis before puberty, and who have subsequently fathered large families.

Admittedly malignancy of the testis is rare, although it is indisputable that it is many times more likely to occur in an undescended testis than in a normal one. Perhaps my fear of this dread consequence in an intraabdominal testis is heightened by the fact that a close medical colleague of mine died from this cause in his early prime. There is no certain evidence that successful placement of an undescended (or ectopic) testis in the scrotum lessens the chance of subsequent malignancy, although it is worth remembering that the late Sir Gordon Gordon-Taylor, a man of great experience in this field, was firmly of opinion that it did. There is no doubt, though, that commencing malignancy in a suspect testis successfully placed in the scrotum can be uncovered in its very earliest stages, whereas malignancy in an intraabdominal testis is never discovered until it is too late for any hope of successful treatment. Surely these considerations warrant pre-pubertal removal of an intraabdominal testis, and also at the same time justify successful surgical placement of an undescended testis in the scrotum.

No final post-operative assessment of any case should be made until five years or more after operation, and certainly not until puberty has been established for several years, at which stage the ultimate size and position of the involved testis can be properly assessed in relation to its fellow. Using these criteria of cure in a large series of cases of one-stage orchidopexy using the Ombredanne method, one can say the results are satisfactory in a great majority of the cases.

Yours, etc.,

KENNETH FRASER.

Ballow Chambers,
Wickham Terrace,
Brisbane.
August 10, 1961.

THE HEALTH OF NORTHERN TERRITORY ABORIGINES.

SIR: The health statistics given in the latest annual report for the Northern Territory for the year July 1, 1957, to June 30, 1958, are most disturbing. On page 86 of this report, under the heading of "Infectious Diseases During 1957-58" with the subtitle "(predominantly affecting aborigines)" one will find the following figures: ancylostomiasis, 144 cases; leprosy, 60 cases; non-pulmonary tuberculosis, 7 cases; pulmonary tuberculosis, 80 cases; trachoma, 412 cases.

It would seem likely that with the chronic diseases such as leprosy and tuberculosis that these were new cases. In the previous year the figures given are as follows: ancylostomiasis, 100 cases; leprosy, 26 cases; tuberculosis, 60 cases; trachoma, 2732 cases.

The aboriginal population and the non-aboriginal population of the Territory are approximately the same, each being something of the order of 18,000.

Dr. C. E. Cook, of the Commonwealth Department of Health, in an address given to a conference on native employment in the Northern Territory on February 24, 1955, had this to say: "Amœbiasis, dysentery, malaria, hookworm, leprosy and tuberculosis are attaining an incidence in the native population imperilling the social and economic development of the Territory."

It would seem that such a statement could well be made again today. The high incidence of disease amongst the aborigines in the Territory is by no means an indictment of the Department of Health. I have no doubt that the medical officers of this department are doing their best to combat and beat disease in the Territory irrespective of the skin colour of the patient. The cause of this disastrous situation is the appalling economic conditions of the aborigines in the Territory.

A study of the "Table of Wages in Relation to Employment of Wards" (a polite name for aborigines), which will be found in an official Government document, provides the answer to the cause of their ill health. This document sets out the minimum (usual) wages to be paid to aborigines in the Territory. It varies from £2 a week for pastoral (the majority are pastoral workers) and timber workers, etc., £5 a week for drovers with plant only, and a maximum of £10 a week for drovers with plant and stock. There is a flat rate of £1 a week for aboriginal women, no matter what their occupation. They receive in addition a soul-destroying "hand out" of food, tobacco and other small items amounting to approximately £3 a week for an adult male.

Ill health is one of the consequences of this poverty, and the basic evil to be attacked is not so much the consequences of this poverty, but just the poverty itself.

Yours, etc.,

366 Church Street,
Richmond,
Victoria.
August 1, 1961.

BARRY CHRISTOPHERS.

GENERAL PHARMACEUTICAL BENEFITS.

SIR: One assumes that Item 47, androstanalone, was put on the restricted list of Pharmaceutical Benefits largely because of the cost, which is given as £A12 7s. per 100. On the face of it, this would seem to be a reasonable restriction; but when I read on page 23 of the advertisement section of the *British Medical Journal* for July 1, 1961, that the basic N.H.S. cost of this preparation is £3 10s. sterling per 100, equivalent to £A4 8s. 6d. approximately, one begins to wonder how import duties and freight and chemists' and agents' profits could possibly account for the difference of nearly £A8 per 100, and how many other preparations are costing the taxpayer proportionately unreasonable amounts.

Yours, etc.,

Beulah,
Victoria.
August 17, 1961.

T. W. HERDMAN PORTER.

COUNTRY SCIENTIFIC MEETINGS FOR POST-GRADUATE NURSES.

SIR: Recently the New South Wales College of Nursing had its first country scientific meeting for post-graduate nurses. This was held at Lismore and was a very successful week-end, attended by well over 100 nurses from a very wide area.

It was a matter of keen disappointment to the College of Nursing organizers that, despite an invitation to the local medical association, no doctors from Lismore attended a lecture. One came across from Casino. I am sure this was failure of communication within the local group, rather than any desire to discourage the nurses, but it must now be rather embarrassing for the local doctors to hear nurses trying to apply what they heard Dr. Scott tell them of modern trends in the care of the aged, Dr. Wiley on the indications for amniotomy, and Professor Haynes on the behaviour of the adolescent.

May I make an appeal through your pages that the medical profession should support to the utmost these meetings arranged by the College of Nursing? The care of patients is surely teamwork, and it would not be difficult for doctors to roster themselves so that one could attend each meeting.

Yours, etc.,

North Shore Medical Centre,
66 Pacific Highway,
St. Leonards.
August 17, 1961.

CLAIR ISBISTER.

CONGENITAL MALFORMATIONS AND MATERNAL RUBELLA: PROGRESS REPORT.

SIR: Whilst abroad, I have just seen Dr. Crompton's letter of July 15 with regard to our paper on "Congenital Malformations and Maternal Rubella". He is quite right in pointing out a most regrettable error in the ocular findings in Table XI. Fortunately it will be possible to put this right in the final report to come. This, as Dr. Crompton recommends, will include full visual assessment of each child at the age of four years, and, as regards the ocular findings, will be presented by an ophthalmologist.

Yours, etc.,

Fountain Hospital,
Tooting Grove,
London, S.W.7,
England.
August 11, 1961.

DAVID PITT.

OPERATIVE TREATMENT OF VARICOSE VEINS.

SIR: Mr. W. Stern has given some thought to the operative treatment of varicose veins in his article appearing in THE MEDICAL JOURNAL OF AUSTRALIA dated August 12, 1961. He appreciates and is well aware of the shortcomings of operative treatment, some disappointing end results of treatment, and the scepticism by the medical profession (Anning[1]), and a general feeling by the public that varicose veins cannot be cured by orthodox treatment.

I know that I am unorthodox in my approach to the problem of lowering the incidence of immediate complications and poor end results. These are due to the performance of an inadequate operation, from lack of appreciation that the complete operation takes three to four hours and we settle for one which takes one to two hours. The stripping operation fails when parts of the vein are left *in situ*, which is much commoner than is generally disclosed by advocates of the operation. Perforating and communicating veins cannot be accurately located from external examination. In short, the standard operation is suitable for 50% of patients, and 50% would be better without any operation followed by the inevitable injections which account for 20% of ulcers (Anning[1]).

Having realized for the past ten years that no stripper is universally successful in all cases for the removal of the long saphenous vein, I have used a combination of stripping and dissection in which the long and short saphenous systems are removed with all large tributaries, perforating veins and communicating veins at one operation.

Operating-theatre tables are not built for comfort or warmth, so I made one, on which the patient sleeps on six inches of "Dunlopillo" mattress. You can use a combination of local and basal anæsthesia, which will last for four hours with no shock. General anæsthesia is definitely contraindicated on account of shock, lack of cooperation by the patient and increased loss of blood during the operation.

The surgeon and theatre sister can carry out this operation without other assistance. It has been stressed recently that the bacterial count increases with the number of people in a theatre, length of operation and circulation of air. I feel that lack of infection in post-operative incisions is partly due to the surgeon and sister being seated during the operation, which reduces the movements of the hands and droplet infection. The theatre has a high humidity from the sterilizer, which settles any dust.

Since 1951 I have performed this operation on 1000 patients; 17% are aged over 60 years, 10% have had previous inadequate operations, 28% had actual ulcers present at the time of operation, some of many years' duration. The patients can walk immediately after the operation and

[1] Anning, S. T. (1954), "Leg Ulcers: Their Causes and Treatment", Churchill, London: 147, 144.

remain in hospital for four days; the stitches are removed a week later. I seldom see the patients a month after the operation, as injections and other treatment are unnecessary.

The operation is suitable for all types of cases, especially patients with ulcers, œdema of venous origin, eczema. Long racket incisions as advised by Cockett have not been found necessary.

Varicose veins are a curable disease. Their cure depends on the surgeon spending the necessary time on the job and operating under ideal conditions, as indicated in this letter.

Yours, etc.,

229 Hunter Street, Newcastle.
New South Wales.
August 17, 1961.

J. N. R. STEPHEN.

PHYSIOTHERAPY IN THE CARE OF BED-RIDDEN PATIENTS.

SIR: Dr. J. Watson in his letter (MED. J. AUST., August 12, 1961) has raised a matter of great moment to those of us interested in the welfare of elderly patients, and one which should be of concern to those responsible for organizing hospital and health services.

This Home now has the care of over 700 residents, 300 of whom are 80 years of age and over. Defining "bed-fast" as applying to a patient who does no more than sit out on a commode and then back to bed, the number of such bed-fast patients has been reduced by a vigorous rehabilitation programme from 25% to 5% in the last three years. This is in spite of the fact that priority of admission is given to those who have become difficult nursing problems in their own homes, and no case is refused because of being too heavy a nursing problem.

I submit that Dr. Watson's plea for a domiciliary physiotherapy service is an inadequate solution to the needs of the more obstinate hemiplegic, who needs frequent treatments if any sort of success is to be achieved. Frequent short periods of treatment alternating with rest periods will give greater success than one concentrated session. The majority respond better when receiving treatment in company than in isolation. This is also an economy on the physiotherapist's time, as one patient can receive individual attention while another is working on the bicycle pedals and still another is resting, and so on.

These patients should receive the same high standard of medical treatment as any other group in the community, and rehabilitation centres should be established for their care. Such centres are preferably situated away from hospital, where this type of patient tends to become too dependent and obsessed with his disabilities rather than his abilities. He has to be trained not only to become ambulant, but also independent.

With the cost of providing full residential accommodation continually spiralling, the need expressed by Dr. Watson could be met by establishing day-treatment centres equipped for full rehabilitation activities and each centre running its own transport service. This solution not only provides the necessary treatment, but relieves relatives of heavy burdens in the daytime, at the same time allowing them to accept their responsibilities at night.

The need is likely to become increasingly acute, and active steps need to be taken to provide the necessary services.

Yours, etc.,

The Queen Elizabeth Home,
102 Ascot Street, Ballarat.
August 18, 1961.

H. C. ROBJOHNS.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

COMING EVENTS.

Closing Date.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the closing date for applications for the following will be September 15, 1961: Post-Graduate Medical Foundation Grants, Post-Graduate Medical Foundation Training Fellowship in Medicine, Post-Graduate Medical Foundation Training Fellowships in Medical Sciences, R. T. Hall Trust Training Fellowships in Cancer Detection.

Overseas Visitors: September.

The following overseas visitors will be in Sydney during September, 1961.

Professor Sir Derrick Dunlop, Professor of Therapeutic and Clinical Medicine, University of Edinburgh; Physician, Royal Infirmary, Edinburgh, and Norman Paul Visiting Professor for 1961 to Sydney Hospital.

Dr. Murray Jackson, Psychiatrist, Middlesex Hospital, London, and Hammersmith Hospital.

Professor Robert McWhirter, Professor of Medical Radiology, University of Edinburgh, and Radiotherapist, Royal Infirmary, Edinburgh.

Dr. David Davies, Director of the Oceanographic Institute, Durban, South Africa.

Dr. John Menkes, Division of Neurological Medicine, The Johns Hopkins Hospital, Baltimore.

Dr. Paul Wood, O.B.E., Director (part-time), Institute of Cardiology; Physician, National Heart Hospital and Cardiac Department, Brompton Hospital, England.

Professor K. W. Donald, Professor of Medicine, University of Edinburgh, and Physician, Royal Infirmary, Edinburgh.

Dr. D. J. Llewellyn-Jones, Department of Obstetrics and Gynæcology, General Hospital, Kuala Lumpur, Malaya.

ANNUAL SUBSCRIPTION COURSE.

The following lectures are open to members of the annual subscription course.

Tuesday, September 5: 2 p.m., "The Endocrine Glands and the Skin", Professor Sir Derrick Dunlop, Students' Common Room, The Royal North Shore Hospital of Sydney; 8.15 p.m., "Cancer of the Breast", Professor Robert McWhirter, I.C.I. Theatrette, East Circular Quay (arranged in association with the College of Radiologists of Australasia).

Wednesday, September 6: 2 p.m., "Addison's Disease, Part II", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital; 8.30 p.m., "Shark Attack", Dr. David Davies, Stawell Hall, 145 Macquarie Street (to be confirmed).

Thursday, September 7: 5 p.m., "Shark Bite", Dr. David Davies, Herford House, 188 Oxford Street, Paddington (to be confirmed); 8.15 p.m., "The Opium Analgesics and their Modern Synthetic Alkaloids", Professor Sir Derrick Dunlop, I.C.I. Theatrette, East Circular Quay (arranged in association with the Australian College of General Practitioners, New South Wales Faculty).

Friday, September 8: 1.15 p.m., subject to be announced, Dr. Murray Jackson — seminar, Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital.

Monday, September 11: 6.15 p.m., "British Psychotherapy", Dr. Murray Jackson, I.C.I. Theatrette, East Circular Quay (arranged in conjunction with the Australasian Association of Psychiatrists).

Wednesday, September 13: 8 p.m., "Mental Health from the Viewpoint of the Psychotherapist", Dr. Murray Jackson, Department of Psychology, University of New South Wales.

Thursday, September 14: 5 p.m., "Some Recent Advances in Pædiatric Neurology", Dr. John Menkes, Doreen Dew Theatre, Royal Alexandra Hospital for Children; 8.15 p.m., "Modern Auscultation", Dr. Paul Wood, Stawell Hall, 145 Macquarie Street.

Monday, September 18: 9.30 a.m., Grand Rounds, Clinical Investigation Unit, St. Vincent's Hospital, Professor K. W. Donald; 12 noon, "Clinical Features and Diagnosis of Hyperthyroidism", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital.

Tuesday, September 19: 12 noon, "Therapeutics and Hyperthyroidism", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital; 8 p.m., "Some Metabolic Defects of the Central Nervous System", Dr. John Menkes, Doreen Dew Lecture Theatre, Royal Alexandra Hospital for Children; 8.15 p.m., "Hæmodynamics in Mitral Stenosis", Professor K. W. Donald, Stawell Hall, 145 Macquarie Street.

Wednesday, September 20: 9.30 a.m., Grand Rounds, Clinical Investigation Unit, St. Vincent's Hospital, Professor

K. W. Donald; 12 noon, "The Endocrine Glands and the Skin", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital.

Thursday, September 21: 12 noon, "The Surgical and Obstetric Diabetic", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital; 8.15 p.m., "Studies in Arterial Hypertension", Professor K. W. Donald, Stawell Hall, 145 Macquarie Street.

Friday, September 22: 9.30 a.m., Grand Rounds, Clinical Investigation Unit, St. Vincent's Hospital, Professor K. W. Donald; 12 noon, "The Complications of Diabetes", Professor Sir Derrick Dunlop, Maitland Lecture Hall, Sydney Hospital; 1.15 p.m., seminar, "Chronic Cor Pulmonale", Professor K. W. Donald, Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital.

Monday, September 25: 9.30 a.m., Grand Rounds, Clinical Investigation Unit, St. Vincent's Hospital, Professor K. W. Donald; 2 p.m., "Physiology of Skin Diving and Submarine Activities", Professor K. W. Donald, 5th Floor Lecture Theatre, St. Vincent's Hospital.

Tuesday, September 26; 2 p.m., "Drowning", Professor K. W. Donald, 5th Floor Lecture Theatre, St. Vincent's Hospital.

Wednesday, September 27: 9.30 a.m., Grand Rounds, Clinical Investigation Unit, St. Vincent's Hospital, Professor K. W. Donald.

Thursday, September 28: 2 p.m., "Asthma and Bronchitis", Professor K. W. Donald, 5th Floor Lecture Theatre, St. Vincent's Hospital.

Friday, September 29: 9.30 a.m., Grand Rounds Clinical Investigation Unit, St. Vincent's Hospital, Professor K. W. Donald; 8.30 p.m., "Research in Teaching Hospitals", Professor K. W. Donald, St. Vincent's Hospital.

The annual subscription course covers attendance at lectures by overseas lecturers and other specially arranged activities. The annual fee is £3 3s. from July 1. The fee for first-year and second-year resident medical officers is £1 12s. 6d. Last-minute alterations to meetings are notified by advertisement in *The Sydney Morning Herald* ("Public Notices"), if possible on the day before the meeting.

METHOD OF ENROLMENT AND GENERAL INFORMATION.

Applications for enrolment on metropolitan and week-end courses should be made to the Course Secretary, Herford House, 188 Oxford Street, Paddington.

TAXATION DEDUCTIONS.

Fees paid by medical practitioners, who are in practice, for attendance at revision and week-end courses conducted by the Committee, including living and travelling expenses, are deductible (Taxation File No. AF/1865).

POST-GRADUATE TRAINING FELLOWSHIP IN PSYCHIATRY.

THE Senate of the University of Sydney has awarded a Post-Graduate Training Fellowship in Psychiatry to Dr. J. O. Hoskin, of Indooroopilly, Brisbane, Queensland.

SEMINARS AT SYDNEY HOSPITAL.

SEMINARS are held at Sydney Hospital on Wednesdays at 2 p.m. in the Maitland Lecture Hall. They are preceded by medical grand rounds at 12 noon and by a pathological demonstration ("organ recital") at 1.30 p.m. The programme for September and October is as follows:

September 6: "Addison's Disease, Part II", Professor Sir Derrick Dunlop, Professor of Therapeutic and Clinical Medicine, University of Edinburgh, Norman Paul Lecturer, 1961. September 13: "Functions of the Renal Collecting Tubules", Dr. David Edwards, Clinical Research Unit. September 20: Sydney Hospitallers Week, no seminar. September 27: "Overseas Observations on Chest Diseases", Dr. F. H. Read, Pulmonary Clinic.

October 4: "Surely, Johnny is Ill", Professor T. Stapleton, Professor of Child Health, University of Sydney. October 11: "Group Psychotherapy in Patients with Physical Disorders", Dr. N. T. Yeomans, Psychiatry Clinic. October 18: "Surgery of Aortic Valve Disease", Mr. W. P. Cleland, Lecturer in Surgery, Postgraduate Medical School, London, Guest Cardiac Surgeon to Royal North Shore Hospital of Sydney. October 25: "Current Trends in the Treatment of Myocardial Infarction", Dr. D. G. Julian, Cardio-Vascular Clinic.

ROYAL PRINCE ALFRED HOSPITAL: EAR, NOSE AND THROAT DEPARTMENT.

Seminar Programme, 1961.

THE staff of the ear, nose and throat department of the Royal Prince Alfred Hospital, Sydney, will conduct a seminar on the second Saturday of every month at 8 a.m. in the Scot Skirving Lecture Theatre. The main speaker will not exceed forty minutes, and there will be a discussion at the conclusion of his remarks. All medical practitioners and clinical students are invited to attend.

At the next seminar, to be held on September 9, Dr. J. H. Seymour will speak on "The Embryology of the Nose with Further Considerations of the Embryology of the Ear".

SEMINARS AT THE DEPARTMENT OF MEDICINE, PRINCE HENRY HOSPITAL, SYDNEY.

SEMINARS, followed by case presentations, are held on alternate Thursdays at 1.30 p.m. at the Department of Medicine, Prince Henry Hospital, Little Bay. The programme for September and October, 1961, is as follows.

September 7: "Alkaline Phosphatase Metabolism", Dr. N. Korner.

September 21: "Some Aspects of Serum Proteins in Health and Disease", Dr. B. Rush.

October 5: "The Trigeminal Nerve", Professor I. Darien-Smith.

October 19: "Principles of Tissue Regeneration", Professor D. L. Wilhelm.

Notes and News.

Seventh International Congress on Diseases of the Chest.

The Seventh International Congress on Diseases of the Chest, sponsored by the Council of International Affairs of the American College of Chest Physicians, will be held in New Delhi, India, on February 20 to 24, 1964. The Congress will be presented under the auspices of the University of Delhi, the Indian Association for Chest Diseases and the Vallabhbhai Patel Chest Institute. Officers of the congress are: President, Dr. Raman Viswanathan; Secretary-General, Dr. S. K. Sen; Treasurer, Mr. Shri S. Ratnam; Secretary of the Organizing Committee, Dr. P. U. Rao. The scientific programme will be organized under the direction of Dr. Andrew L. Banyai, Director of International Affairs of the American College of Chest Physicians. In addition to formal lectures by eminent scientists from all parts of the world, there will be panel discussions, motion pictures and fireside conferences on subjects relating to all aspects of the diagnosis and treatment of diseases of the heart and lungs. Some of the highlights of the programme will be on recent advances in cardiopulmonary physiology, cardio-vascular surgery, antibiotics, bronchial asthma and emphysema, tuberculosis and other pulmonary diseases. The official languages of the congress are English and French; there will be simultaneous translation at the scientific sessions. Registration fees are $25 for physicians and $10 for ladies and guests. Mr. Murray Kornfeld is Executive Director of the American College of Chest Physicians, which has International Headquarters located at 112 East Chestnut Street, Chicago 11, Illinois, U.S.A. Additional information may be obtained by writing to the College office in Chicago.

Fatal Traffic Accidents in Tokyo.

According to a statement by Dr. Royotaro Azuma, formerly a member of the Executive Council of the World Health Organization, Tokyo's chief problem at present is the number of traffic accidents; 1126 people were killed and 61,000 injured in 1959.[1] In order to induce a sense of respon-

[1] *Presse méd.*, 1961, 69:1320 (June 10).

sibility in road-users, the police post up in the nerve-centres of the city, outside police headquarters and outside all police stations, the number of fatal accidents and the number of cases of injury recorded for the previous day for the whole city.

Grants for Research into Cancer.

Advice has been received from the Secretary of The New South Wales State Cancer Council, to the effect that funds are available to the Council for research into cancer, during the year ending December 31, 1962. Applications are now being invited for grants in respect of (*a*) research fellowships, (*b*) travelling fellowships, (*c*) grants-in-aid. The closing date for the lodgement of applications is October 10, 1961, and such applications must reach the Secretary, The New South Wales State Cancer Council, Box 4383, G.P.O., Sydney, or Challis House, 10 Martin Place, Sydney, no later than that date. Application forms and further details may be obtained from the Secretary at the address mentioned above.

Health and Tuberculosis Conference, Ibadan, Nigeria.

The Chest and Heart Association, with the cooperation of the Federal Government of Nigeria and by kind invitation of the University College, Ibadan, is sponsoring a Health and Tuberculosis Conference, to be held at the University College, Ibadan, Nigeria, from March 26 to 31, 1962. This is a completely new venture, of which the aim is to encourage all workers in the field of tuberculosis in Africa. This is the sixth in the series of Commonwealth conferences, which have previously been held in London. Among the speakers will be eminent chest physicians from Great Britain and all parts of the world. The programme will include lectures and panel discussions on: tuberculosis, the greatest tropical menace; tuberculosis and leprosy; community infection—cause and remedy; drugs—their value and limitations; the techniques of community surveys; non-pulmonary tuberculosis; travelling clinics and village hygiene. The Conference fee is three guineas, and accommodation in the University hostels will be available at moderate charges. A charter plane will leave London on March 24, 1962. Applications for further details should be made to the Conference Secretary, The Chest and Heart Association, Tavistock House, Tavistock Square, London, W.C.1, and not to the University College, Ibadan, Nigeria.

The Royal Australasian College of Physicians.

VICTORIAN STATE COMMITTEE.

Lecture by Sir Macfarlane Burnet.

THE Victorian State Committee of The Royal Australasian College of Physicians has arranged for Sir Macfarlane Burnet, F.R.S., of the Walter and Eliza Hall Institute of Medical Research, to deliver a lecture entitled "Auto-immune Disease" in the Lecture Theatre of the Royal Australasian College of Surgeons, Spring Street, Melbourne, on Thursday, September 21, 1961, at 8.15 p.m. All members of the medical profession and all other interested persons are invited to be present.

University Intelligence.

UNIVERSITY OF MELBOURNE.

Combating Air Pollution in Industry.

THE Department of Chemical Engineering and the Extension Committee of the University of Melbourne announce a series of 15 lectures supported by demonstrations and equipment design seminars on the general subject of "Combating Air Pollution in Industry". The course will be held in the Engineering School, University of Melbourne, from November 20 to 24, 1961, and will be introduced by Dr. R. J. Farnbach, Deputy Chief Health Officer, Commission

DISEASES NOTIFIED IN EACH STATE AND TERRITORY IN AUSTRALIA FOR THE WEEK ENDED AUGUST 5, 1961.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	..	3	..	..	..	..	..	3
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	2	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	1	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	9(9)	4(4)	..	1	6	5	..	26
Diphtheria	..	..	..	..	1(1)	..	..	..	1
Dysentery (Bacillary)	..	..	..	1	..	..	1	..	2
Encephalitis	..	..	..	1(1)	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	106(50)	62(18)	11(1)	24(12)	2(1)	1	2	6	214
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	1	..	2	..	..	..	3
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	2	1	..	..	..	..	..	..	3
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	5(4)	..	..	..	1	..	6
Puerperal Fever	..	..	1	..	..	..	..	..	1
Rubella	..	28(7)	..	..	9(8)	..	..	..	37
Salmonella Infection	..	..	..	..	1(1)	..	..	..	1
Scarlet Fever	4(2)	3(2)	..	..	4(3)	..	..	..	11
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	1(1)	..	..	..	1
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	26(18)	17(15)	3(1)	3(3)	8(6)	3	..	..	60
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

of Public Health, and Chairman of the Victorian Clean Air Committee. The lecturers will be recognized specialists in their various fields. The fee for the course is £25, and registration should be made on the prescribed enrolment card. This, and further information relating to the course, may be obtained on application to the Extension Committee, University of Melbourne, Parkville, N.2, Victoria. The closing date for applications is November 6, 1961. The Extension Committee will undertake to arrange a limited amount of accommodation in the Colleges attached to the University. If this service is required, application should be made by November 1.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the register of medical practitioners according to the provisions of the *Medical Practitioners Act*, 1938 (as amended).

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (1) (*a*) of the Act: Lee, Yoke Thay, M.B., B.S., 1959 (Univ. Sydney).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*b*) of the Act: Collins, Edith Isobel, M.B., Ch.B., 1951 (Univ. Edinburgh), D.C.H., R.C.P. & S. (England), 1954; Macmillan, Ian Scott, M.B., Ch.B., 1958 (Univ. St. Andrews); Wolf, Zalmon, M.B., B.Ch., 1938 (Univ. Witwatersrand), D.P.M. (Witwatersrand), 1953.

The following has been issued with a licence under Section 21A of the Act: Bierzynski, Henry, for one year from July 31, 1961.

The following have been issued with a licence under Section 21c (4) of the Act: Baczynska, Obsana, for a period of one year from July 27, 1961; Wilcox, Eva, for a period of one year from July 17, 1961; Chariw, Peter, for a period of one year from June 27, 1961.

The following has been issued with a licence under Section 21c (3) of the Act: Szabo, Denes, for a period of one year from July 17, 1961.

The following have been issued with an interim licence: Sereanu, Andrei, Eastern Suburbs Hospital; Stancikas, Konstantin, Lithgow District Hospital.

Nominations and Elections.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association: Appel, Denis Anthony, M.B., B.S., 1959 (Univ. Sydney), Robinson, Lyon Phillip, M.B., B.S., 1961 (Univ. Sydney); Bassett, Duncan James, M.B., B.S., 1956 (Univ. Sydney); Chok, Thomas, M.B., B.S., 1961 (Univ. Sydney); Cronan, John Patrick, M.B., B.S., 1959 (Univ. Sydney); Mitrofanis, Christos, M.B., B.S., 1959 (Univ. Sydney); Molloy, William Boyd, M.B., B.S., 1961 (Univ. Sydney); O'Neill, Barry James, M.B., B.S., 1956 (Univ. Sydney); Whitton, James, M.B., B.S., 1960 (Univ. Sydney).

Deaths.

THE following deaths have been announced:

WILKIN.—James Thomas Wellington Wilkin, on July 24, 1961, at Melbourne, Victoria.

BOEHM.—Gerhard M. Boehm, on July 25, 1961, at Melbourne, Victoria.

SHERWIN.—John Arthur Hopkins Sherwin, on August 14, 1961, at Melbourne, Victoria.

RAYSON.—Hugh Rayson, on August 17, 1961, at Arakoon, South West Rocks, N.S.W.

PIPER.—Cyril Thomas Piper, on August 18, 1961, at Adelaide, South Australia.

Diary for the Month.

SEPTEMBER 2.—Queensland Branch, B.M.A.: Eighth Branch Convocation; 31st Jackson Lecture; Annual General Meeting.
SEPTEMBER 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.
SEPTEMBER 6.—Western Australian Branch, B.M.A.: Branch Council.
SEPTEMBER 6.—Victorian Branch, B.M.A.: Clinical Meeting (Pathology Department).
SEPTEMBER 7.—South Australian Branch, B.M.A.: Council Meeting.
SEPTEMBER 8.—Queensland Branch, B.M.A.: Council Meeting.
SEPTEMBER 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
SEPTEMBER 14.—New South Wales Branch, B.M.A.: Public Relations Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): Medical Officers to Sydney City Council. All contract practice appointments in New South Wales. Members are requested to consult the Medical Secretary before undertaking practice in dwellings owned by the Housing Commission.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

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